SPECIFIER KIT

ET Manager

Rain Bird ET Manager Specifier Kit

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OVERVIEW

The Rain Bird® ET Manager uses real-time weather conditions to determine evaporation and automate landscape irrigation keeping landscapes healthy while preserving precious water resources. The most accurate product of its' kind, the ET Manager utilizes real-time, hourly weather information gathered from local precision weather stations which measure all weather parameters including solar radiation, temperature, wind, humidity, and rain. Weather information is shared throughout a community through a commercial paging system and used by the ET Manager to determine watering frequency, eliminating the need to purchase or maintain on-site weather stations.

An ET Manager can be connected to most controllers to automate water management based on ET and rain. With features such as rain, freeze and high wind shut-off the ET Manager offers core benefits of advanced control. The ET Manager is reliable featuring power failure backup and programmable Historical ET settings.

The ET Manager follows the Irrigation Association's Best Management Practices of "Managed Allowed Depletion" which promotes deep, less frequent watering. The ET Manager maintains an optimum soil moisture level, allowing the soil to dry out to a healthy level. Irrigation only occurs when needed.

The return on investment for the ET Manager includes water savings typically between 30-50%. In addition, labor savings are significant for large landscapes utilizing management companies, especially when crews have to drive from site to site adjusting controllers with changing weather. The Rain Bird ET Manager is cost effective, convenient and produces sustainable results. Every user can achieve significant water savings and enjoy a beautiful landscape.

CHECKLIST - for specifying the ET Manager

- ☐ Weather Reach™ Signal Provider Service
- ☐ Sprinkler Controller
- ☐ Specifications
- ☐ Detail
- ☐ Accessories
    - ☐ Tipping Rain Gauge
    - ☐ Outdoor Enclosure
    - ☐ External Antenna
- ☐ Schedules and Settings

Weather Reach Signal Provider Service

The ET Manager receives hourly weather information from a Weather Reach Signal Provider. **To find a Weather Reach Signal Provider**, please go to www.rainbird.com, or type the following link into your web browser: www.rainbird.com/landscape/products/controllers/etmanager_WRSP.htm

If there is not a Weather Reach Signal Provider available; see page 9 for information on how to establish a new Weather Reach Signal Provider.

Sprinkler Controller

The ET Manager is compatible with most standard sprinkler controllers. The ET Manager controls the frequency of watering by interrupting the common output of the controller. Watering occurs when needed, based on real-time ET and rainfall. The ET Manager supports two independent ET-based schedules, typically turf and shrub areas. To utilize separate schedules, each Valve Group (A & B) needs separate valve common wires.

Wiring:

Power –Power for the ET Manager can come from one of two sources:

Power Option 1: The ET Manager can be connected to a 24-volt AC source within the sprinkler controller. The current draw is 0.22 Amps (less than one standard valve solenoid). Check the sprinkler controller owner's manual to verify that accessory devices can be powered from the sprinkler controller power supply.

Power Option 2: Use a Rain Bird plug-in transformer (ETM-TRAN). This plugs into a standard 110-volt AC outlet.

Note: Each ET Manager comes with a 9-volt battery for non-volatile memory backup in case of power outage.

Ground – Grounding is essential for electrical surge protection and personal protection. Ground wire size 10-18 gauge may be used, though 10 AWG is recommended.

Valve Common – The valve common from the sprinkler controller is wired into the ET Manager 'COM' terminal and the Valve Groups A and B field common wires run from the ET Manager 'A' and 'B' terminals to the sprinkler controller valves. A separate common wire is required for each valve group (see detail on page 31).

Note: See Advanced Options for applications with ET-Based sprinkler controllers on page 6.

Specifications

Construction documents specifications for the ET Manager and accessories can be found on pages 26-27, and are in rich text format on the ET Manager Resource CD. The following product specifications are included:

- ET Manager (ETMi)
- ET Manager Tipping Rain Gauge (ETM-RG)
- ET Manager Outdoor Enclosure (ETMi-OE)
- ET Manager External Antenna (ETMi-ANT)
- 110VAC Transformer (ETMi-TRAN)

Details

Installation details for the ET Manager and accessories are on the ET Manager Resource CD in AutoCAD (DWG), and PDF formats. Details are also included in the resource section of this document. The following details are available:

Detail	Page #
ET Manager	31
ET Manager Tipping Rain Gauge	32
ET Manager Outdoor Enclosure	33
ET Manager External Antenna	34

Accessories

ET Manager Tipping Rain Gauge (ETM-RG)

While rain measurements are included in the hourly broadcast, rain information can be received from an on-site tipping bucket rain gauge for more localized accuracy. The Rain Gauge is a 1.0 mm per tip, self emptying, frost-proof, weatherproof device that resists UV and extreme temperatures and includes a 30-foot cable (see page 19 for specification and 32 for detail).

ET Manager Outdoor Enclosure (ETMi-OE)

If installing outside, the ET Manager must be housed inside an outdoor enclosure. A lockable, weatherproof, UV-protected plastic cabinet with integrated mounting plate pre-drilled for the ET Manager is available (see page 20 for specification and 33 for detail).

ET Manager External Antenna (ETMi-ANT)

Some locations have unavoidable features that impede receiver performance. An external antenna may improve signal reception. The ET Manager External Antenna kit includes an Antenex Phantom 3dB gain antenna complete with mounting bracket and 15 feet of antenna cable (see page 21 for specification and 34 for detail).

110VAC Transformer (ETMi-TRAN)

In situations where the ET Manager cannot draw electricity from a sprinkler controller's 24VAC power supply, the 110VAC Transformer may be used to power the ET Manager (see page 22 for specification).

Schedules and Settings

The ET Manager has several programmable settings to make it a site-specific tool. Information such as soil type, root depth, precipitation rate, slope and microclimate conditions are all taken into consideration to create the ideal schedule for each site. These settings are critical to the efficiency of the ET Manager and sprinkler controller, and must be programmed upon installation. Determining the ET Manager settings and the best watering schedule for the sprinkler controller is made simple with the use of the ET Manager Scheduler, software application included with each ET Manager, for more information see page 50.

ADVANCED OPTIONS

Enable A then B Output (Control) Method

Some sites need to spread watering over 2 days, watering a portion of the site one night then the remaining portion the next night. The Enable A then B method separates watering of Valve Groups A and B over a two day period. **Two common wires are required to use this feature** and the sprinkler controller must support the **option to "overlap" programs**. Even though the sprinkler controller will attempt to operate both programs at the same time, the ET Manager will only allow one valve group to operate at a time.

ET & Rain Pulse Output (Control) Method

There are advanced ET-based sprinkler controllers that can use the ET Manager as an ET source. ET-based controllers that accept a pulse input as an ET value can be connected to an ET Manager. The ET Manager provides a momentary switch closure for each 0.01" of ET. The ET Manager has a separate rain pulse output that provides a momentary switch closure for each 0.01" of rain. The rain data comes from the selected rain source. The sprinkler controller uses these values to automatically adjust watering schedules.

To utilize the ET and Rain Pulse Output Method, the ET Manager must be programmed correctly and the sprinkler controller must be programmed to recognize pulse inputs.

Additional information:

- Application Notes for use with Maxicom^2 Central Control can be found on page 51.
- Details for using ET & Rain Pulse Output Method can be found in the ET Manager Series Installation and Operation Manual, Chapter 8 (a PDF version can be found on the ET Manager Resource CD).

ET Pulse with Weather Interrupt Output (Control) Method

This control method functions the same as the ET and Rain Pulse Output Method by utilizing Weather Interrupt instead of a Rain pulse. To utilize this Output Method, the ET Manager must be programmed correctly and the sprinkler controller must be programmed to recognize ET pulse input and Weather Interrupt control.

Additional information:

- Application Notes for use with Maxicom^2 Central Control can be found on page 51
- Details for using ET Pulse with Weather Interrupt Output Method can be found in the ET Manager Series Installation and Operation Manual, Chapter 8 (a PDF version can be found on the ET Manager Resource CD).

ESTABLISHING A NEW WEATHER REACH SIGNAL PROVIDER

OVERVIEW

The ET Manager receives a wireless signal containing weather data from a local weather station. A Weather Reach Signal Provider (WRSP) manages a weather station network and provides weather information to a community. An unlimited number of properties can share accurate weather information to automatically manage watering schedules.

Public agencies, contractors, homeowners associations and others can benefit from the system. For example, water conservation objectives of public agencies can be advanced, contractors can improve water management services and homeowners associations can help the community save money.

The Weather Reach Server is a software application that retrieves weather data from weather stations and delivers the information via paging to an unlimited number of ET Managers. The weather data is broadcast wirelessly, via paging, to ET Managers. The Weather Reach Server is also capable of automatically updating web sites with current weather conditions and evapotranspiration (ET) data.

If a Weather Reach Signal Provider is not available to service a project there are several options available to establishing a new Weather Reach Signal Provider.

CHECKLIST - for specifying a Weather Reach Signal Provider

- ☐ Evaluate Paging Service Availability
- ☐ Determine Signal Provider Type
  - ■ Public
  - ■ Commercial
  - ■ Private
- ☐ Determine System Operator
  - ■ Owner Operator
  - ■ Weather Reach Signal Service Contract with Irrisoft, Inc.
- ☐ Determine Weather Station Access
- ☐ Specification(s)
- ☐ Detail(s)

Evaluate Paging Service Availability

To verify that paging is available in the area being considered, go to http://www.usamobility.com/check_coverage/index.html and enter the area zip code(s) into the “Local One-Way” option. Or contact Weather Reach Signal Provider Support 1-877-351-6588.

Determine Signal Provider Type

Public - A Public WRSP provides a service to the community by broadcasting a wireless signal of accurate weather data to Rain Bird® ET Managers at no cost to the end user. Water agencies, cities, and state governments can provide the signal to assure sustained, effective water conservation.

Commercial - There is a business opportunity for water managers, maintenance contractors, distributors and others to offer automated water management services by broadcasting the weather signal, typically on a subscription basis. This service can be offered to existing customers but also provides an effective means to expand a customer base.

Private - Entities such as Home Owner's Associations, Universities, Parks Departments and others who have many sprinkler controllers, or who represent many owners of sprinkler controllers, can bring weather-based control to the controllers. A Private Weather Reach Signal Provider only services controllers which they either own or are associated with. Some potential Private Signal Providers may consider being a Public Weather Reach Signal Provider to provide a service to the community. The system can support this decision without increasing the costs for the potential Weather Reach Signal Provider.

Determine System Operator

The Weather Reach Server Software runs on a Personal Computer. Once the system is setup, it should be monitored on a daily basis. To assure the data is going out each hour the computer operates 24-hours a day, every day of the week. There are two options to system operation; Owner Operator, and Weather Reach Signal Service Contract with Irrisoft, Inc.

Option 1) Owner Operator

The Weather Reach Server consists of a Personal Computer operating the Weather Reach Server Software and includes a Feedback Receiver (used to verify pages are being sent). Full time Internet access (for sending information to a paging provider) and a communication path to the weather station (typically telephone) must be available. The PC does not need to be dedicated specifically to the Weather Reach Server Software, but other uses of the PC must not interfere with the Weather Reach Server. The owner operator must enter into a contract with a commercial paging company, typically Metrocall, and is responsible for payment of paging services.

Tools Needed to Operate a Weather Reach Server:

- Personal Computer
  - Windows NT, 2000, XP, or Vista
  - USB port for feedback receiver
- FTP or direct access to the web server – required if providing weather data and ET for a website
- Uninterrupted power supply
- Weather station communication modems
- Feedback Receiver (included)
- Contract with a Paging Company (typically Metrocall)

Option 2) Weather Reach Signal Service Contract with Irrisoft, Inc.

Some entities prefer to outsource professional services. Irrisoft is Rain Bird's partner in Weather Reach Water Management and can provide Weather Reach Signal services under a contract with an entity. Irrisoft service fees are based on the number of weather stations. An unlimited number of ET Managers may be programmed to use the signal. The entity designates who is eligible to utilize the signal.

The entity is responsible for the weather station(s). They may own and maintain the station(s) or make arrangements to access existing weather station(s). Irrisoft operates the Weather Reach Server. The phone costs to communicate with the weather station and paging costs are included in the service fee. Contact Weather Reach Signal Provider Support 1-877-351-6588 for rate plans.

Determine Weather Station Access

The WRSP is responsible for the weather station(s) used. They may own and maintain the station(s) or make arrangements to access existing weather station(s).

Existing Weather Stations

The Weather Reach Server can access existing Rain Bird weather stations. Most Maxicom stations can be used. In most cases, existing stations can be accessed without any changes to the weather station and with no impact to other users of the weather station. Stations with dial-up connections are easiest to use.

Existing Weather Station requirements

The Rain Bird WS-200, WS Pro and WS Pro LT are compatible weather stations. In the event that other Campbell Scientific weather stations are available, several things must be considered.

The minimum sensor set must include:

1. Pyranometer (Solar radiation sensor)
2. Air Temperature Sensor
3. Relative Humidity Sensor
4. Anemometer (Wind speed sensor)
5. Tipping Bucket Rain Gauge

The weather station must be programmed to store the following weather conditions with a 5- minute, 15-minute, or hourly time step:

- Average Air Temperature
- Maximum Air Temperature
- Minimum Air Temperature
- Average Relative Humidity
- Solar Radiation
- Average Wind Speed
- Rain

Note: If the existing weather station is not a Rain Bird station, contact Weather Reach Signal Provider Support 1-877-351-6588 for more information.

Existing Weather Station Networks

In some parts of the country there are existing weather station networks* that can be accessed via the Internet. If there is a weather station network in your area, contact Weather Reach Signal Provider Support 1-877-351-6588 to determine if the network can be used.

*The National Weather Service network is not compatible because it does not include solar radiation measurements.

New Weather Stations

If existing stations are not available, a WRSP may purchase and install a Rain Bird® WS-PRO or WS-PRO-LT weather station. For more information about weather stations, see pages 13-14 and 23 or contact Weather Reach Signal Provider Support 1-877-351-6588. Weather Station details can be found on pages 33-36.

Specifications

Rain Bird® Weather Reach Sever (ETM-WRSS) Specification see page 21, see page 27 for construction documents specification.
Rain Bird® WS PRO Weather Station Specification see page 23.

Details

Installation details for the Rain Bird WS-PRO Weather Station are on the ET Manager Resource CD in AutoCAD (DWG), and PDF formats. Details are also included on the pages listed below:

Detail	Page #
WS-PRO Weather Station	35
Maxicom Weather Station Installation	36
Maxicom Weather Station External Wiring - post	37
Maxicom Weather Station External Wiring - underground	38

Weather Station Sighting Criteria

Selecting an appropriate site for the weather station is critical in order to obtain accurate meteorological data. In general, the site should be representative of the general area of interest, and away from obstructions such as buildings and trees. The weather station should not be located where sprinkler irrigation water will strike sensors or instrument enclosure.

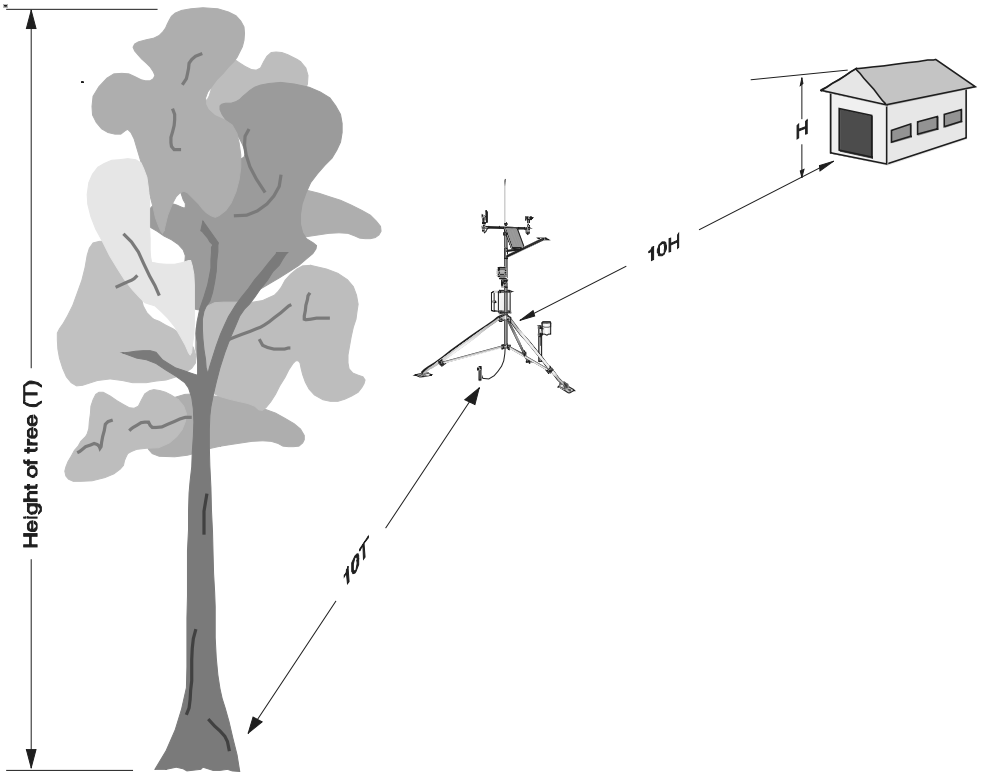

FIGURE 1. Weather Station Citing

Wind Speed and Direction

Wind sensors should be located over open level terrain, and at a distance of at least ten times the height of any nearby building, tree or other obstruction, as illustrated in Figure 1.

Temperature and Relative Humidity

The surface should be covered by short grass. Sensors should be located at a distance of at least four times the height of any nearby obstruction and at least 100 feet from large paved areas.

Situations to avoid include:

- Large industrial heat sources
- Rooftops
- Parking lots
- Steep slopes
- Sheltered hollows
- High vegetation
- Shaded areas
- Swamps
- Low places holding standing water after rain

Precipitation

The rain gauge should be located a distance of two to four times the height of any obstructions. The rain gauge should be high enough to not be hit by sprinklers.

Solar Radiation

Pyranometers should be located to avoid shadows on the sensor at any time.

Weather Station Communication

The most common method of communication with a weather station is dial-up telephone service or “direct connect” utilizing a short-haul modem. More than one user can access a dial-up station. Direct connect stations are connected to a single computer. If the weather station is located in close proximity to the Weather Reach Server then there is a simple, low cost means to access a weather station. If the direct connect weather station is being accessed by another computer system, there may be alternative solutions. Contact Weather Reach Signal Provider Support 1-877-351-6588 for more information.

There are other communication methods supported by Campbell Scientific. Contact Weather Reach Signal Provider Support 1-877-351-6588 for more information.

PRODUCTS

RAIN BIRD®

TECH SPECS

Rain Bird® ET Manager™ Series

The Rain Bird ET Manager (ETMi) is a control device that enables weather-based management for irrigation controllers. The ET Manager does this by using current weather conditions to calculate evapotranspiration (ET). The Rain Bird ET Manager uses the ASCE (American Society of Civil Engineers) Certified ET Equation endorsed by the Irrigation Association that recommends the inclusion of all weather parameters to calculate ET. Typically, controllers irrigate on time–based (day, hour, minutes to water) schedules regardless of changing weather and landscape needs, whereas the Rain Bird ET Manager interrupts the controller only allowing it to irrigate when the soil moisture balance reaches user set levels. Managing the soil moisture balance, the ET Manager uses a programmed irrigation amount, and ET minus effective rainfall, to determine when watering is needed. By receiving hourly weather data, the ET Manager can also suspend the controller's watering cycle when wind, freezing or rain conditions exceed user set levels enhancing its ability to save water and reduce runoff. The Rain Bird ET Manager brings weather-based control to virtually any irrigation controller to provide the convenience of automated schedule control while ensuring maximum water savings and helping maintain healthier landscapes.

Features

Universal compatibility
- Compatible with virtually any irrigation controller through the common wire, regardless of the number of stations.
- Provides pulse output of ET to compatible controllers.

Easy to Use
- Large graphical LCD display makes the ET Manager easy to read, program and understand.
- Weather information and graphs are maintained from the last two weeks allowing quick viewing of rain, air temperature, wind speed, relative humidity and ET.
- At-a-glance display shows the current landscape moisture level for valve groups "A" and "B".
- Easy to use intuitive menu allows the user to quickly access programming and system information.
- "A" and "B" indicator lights let the user know whether watering will occur or not.
- An Override button allows the user to quickly override the ET Manager to permit manual watering.

Maximum Flexibility
- Programmable delays for rain, temperature and wind allows irrigation to be interrupted until adverse conditions change.
- Can receive signal to interrupt all irrigation for emergency management or drought restrictions.
- Two independent ET-based irrigation schedules to accommodate differing plant types (ex. turf and shrubs).
- Daily watering window allows non-ET-based controller programs to operate normally.
- Adjusts to any cycle mode (CUSTOM, ODD, ODD 31st OFF, or EVEN).
- Programmable landscape adjustment values based on plant type used to meet site specific watering needs.
- Compatible with Rain Bird WS Pro Weather Station as well as other weather station networks through custom integration.

Reliable Operation
- Power failure backup: A 9-volt alkaline battery is included to keep current time and date during a power outage.
- UL listed; CUL, FCC approved.
- User programmable 12-month historical ET database for backup in the unlikely event that the weather signal is interrupted.
- A yellow LED indicates "Attention" conditions the user should be aware of.
- Settings can be saved and later recalled for system restoration – "Contractor Default".
- Secure password protected system prevents unauthorized program changes.

Healthy Landscape Through Precision Irrigation
- Hourly weather data adjusts the soil moisture balance used to control the watering frequency to meet the actual water needs of the landscape – never over- or under-water again due to unpredictable weather.
- The programmable irrigation amounts correspond to the irrigation controller settings and are linked to the soil moisture balance to allow watering once soil moisture settings are reached.
- Optional tipping rain gauge can be used onsite to replace rain information from the weather station.

- Programmable effective rain settings, based on soil conditions, automatically limit the amount of rain used in the soil moisture balance.

Save time and money
- Quick and easy installation allows users to realize savings and benefits faster.
- Information log reports the date and time of the last watering, number of times watering occurred, and other events to track operation.
- Reduce water costs dramatically through sustained conservation.
- Reduce labor costs – scheduling changes are made automatically based on current weather conditions instead of manual seasonal adjustment.

Dimensions

Width: 5.6 inches (14,2 cm)
Height: 6.5 inches (16,5 cm)
Depth: 2.0 inches (5 cm)
Weight: 15 ounces (435 g)

Models

ETMi: ET Manager Control Device, indoor model only

Operating Specifications

The ET Manager (ETMi) shall have four independent output modes to interface with virtually any irrigation controller.

ET ENABLE
The valve common from the sprinkler controller shall be wired to the common input terminal. The connection shall be to the normally closed contacts. When watering is not needed, the relays shall be opened to interrupt the common circuit for valve groups A and/or B.

ET ENABLE A THEN B
A programming feature that modifies the ET Enable output method to restrict valve group A and B watering to separate days. In the event the irrigation schedule exceeds the watering window for one day, alternating days shall allow watering to be spread over 2 days. Valves connected to valve group A shall water one day, then valve group B waters the next day. All other program features shall be the same.

ET & RAIN PULSE
ET and rain data shall be passed to a compatible host irrigation controller or control system using a "pulse" method. A dry contact switch closure shall represent 0.01" of ET or rain. The relays shall be normally open.

ET PULSE AND WEATHER INTERRUPT
ET data shall be passed to a compatible host irrigation controller or control system using a "pulse" method. A dry contact switch closure shall represent 0.01" of ET. The relays shall be normally open.

A second relay shall provide a sensor interrupt to prevent watering if any one of the three weather interrupt conditions occurs: rain, freezing conditions, or high wind. The relay shall be normally closed.

Programmable schedule options
Available watering days can be limited to accommodate site needs. The look-ahead feature may allow watering the day before a non-available watering day.
1. ODD day watering (per program)
2. EVEN day watering (per program)
3. CUSTOM (weekly schedule)
4. ODD 31st off (per program)

Electrical Specifications

- Power Supply: 12 to 30 Volts AC or 12 to 35 Volts DC
- Operating Temperature Range: 5° F - 149° F (Radio reception operating temperature: 32° F - 122° F)
- Terminal Wire Gauge: 14 to 26 awg
- Ground Lug Wire Gauge: 10 to 18 awg
- Serial Communication: TTL 1x6 Header
- Optional External Antenna Connection: BNC Female, 930 MHz, 50 ohm
- Rain Gauge Sensor Voltage: 3.3 Volts DC
- Battery Backup: 9-volt alkaline battery included for programming under batter power and maintaining program current time and date during power outages
- Three year warranty

Technical Specifications

The ET Manager (ETMi) shall be a control device for a sprinkler controller, and shall be adaptable to most sprinkler controllers. It shall be programmable to site-specific conditions to manage landscape watering based on hourly weather conditions.

The ET Manager (ETMi) shall be programmable to the required Signal Provider Code in order to receive messages from the Weather Reach™ Signal Provider (WRSP). The user shall be able to enter a weather region code number that corresponds to the desired weather station data source operated by the WRSP.

The ET Manager (ETMi) shall calculate ET values using ASCE Standardized equation based on weather station input including wind speed, temperature, relative humidity, and solar energy. Effective rainfall shall be subtracted from ET to calculate a moisture balance.

The ET Manager (ETMi) shall interrupt the 24 VAC common wire suspending irrigation frequency based on user-selectable irrigation amounts.

The ET Manager (ETMi) shall be mounted in close proximity to the irrigation controller; in applications requiring outdoor mounting, the ET Manager shall be mounted in a weather-proof enclosure.

The ET Manager (ETMi) shall operate at 12 to 30 Volts AC or 12 to 35 Volts DC @ 0.22 Amp max and be capable of withstanding a maximum contact load of 4 Amp @ 30 Volts AC maximum.

The ET Manager (ETMi) shall have an integrated override button to permit maintenance and manual watering to occur.

The ET Manager (ETMi) shall have a factory supplied 9-volt alkaline battery to maintain clock time and program memory during a power outage.

The ET Manager (ETMi) shall have programmable settings and records shall be stored in non-volatile memory and be able to be recalled.

The Rain Bird ET Manager Series shall be sold by Rain Bird Corporation.

Optional Accessories

ETMi-ANT: ETMi Remote Antenna Kit*

ETM-RG: Tipping Rain Gauge

ETM-WRSS: Weather Reach Server Software

ETM-PS: ET Manager Programming Software

ETMi-OE: ETMi Outdoor Enclosure

ETMi-TRAN: 120 Volts AC Plug-in Transformer-635640

** ET Manager has a built in antenna. Locations with a weak paging signal may require an external antenna.*

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Rain Bird International, Inc.
145 North Grand Avenue, Glendora, CA, 91741, U.S.A
Phone: (626) 963-9311 Fax: (626) 963-4287

Technical Service and Support
(877) 351-6588 (U.S. and Canada only)

Specification Hotline
(800) 458-3005 (U.S. and Canada only)

www.rainbird.com

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Rain Bird® ET Manager™ Tipping Rain Gauge (ETM-RG)

The Tipping Rain Gauge is an ideal complement to the ET Manager. Self-emptying and frost-proof, this electronic gauge accurately measures rain to 1mm per tip. From the top of the rain collector, water runs through a funnel into a self-emptying spoon. Once 1mm of water collects the spoon tips and automatically sends a pulse message to the ET Manager.

Electrical Specifications

- The Tipping Rain Gauge must be connected to the ET Manager using the included cable.
- The cable is 20AWG stranded (7x28) ETP high-conductivity copper conductors, PVC insulation, parallel: (1) tinned, (1) bare.
- The length of the cable may be extended up to 500 feet.

Technical Specifications

The Tipping Rain Gauge shall provide a measurement of local rain fall to the Rain Bird ET Manager. It shall provide rain information via a dry contact pulse measuring 1mm of rain per pulse or tip with a maximum +/- 2 percent deviation. It shall be made of durable, weatherproof material resisting UV radiation, frost and extreme temperatures. It shall include a 30-foot cable.

The Tipping Rain Gauge must be mounted on a level surface in a location where natural rainfall may be caught, not blocked by obstructions, nor in a location where sprinkler water might be collected in addition to rain.

The Tipping Rain Gauge shall be sold by Rain Bird Corporation

Dimensions

3 5/16" H x 1 15/16" W x 3 7/8" D

Model

ETM-RG: Tipping Rain Gauge

Rain Bird® ET Manager™ Outdoor Enclosure (ETMi-OE)

The Outdoor Enclosure is an industrial NEMA 4X enclosure (modified for cable entry) that includes a door gasket, stainless steel hinge and lockable hasp to provide protection in harsh, aggressive environments. Rugged design combines with tough, durable materials, for extreme reliability in rough environments. With mounting plate, 110-volt plug in receptacle and wiring conduits, the Outdoor Enclosure is easy to install.

Electrical Specifications

- 120-volt AC receptacle
- ½" Conduit openings (2)
    - For 110-volt AC power (optional)
    - Wire run to sprinkler controller

Technical Specifications

The ET Manager Outdoor Enclosure (ETMi-OE) shall be a secure case with mounting plate for use with the Rain Bird® ET Manager (ETMi). It shall provide protection for the ET manager against outdoor environmental conditions. It shall have two conduit holes in the bottom of the case, one to accommodate necessary wiring between a sprinkler controller and the ET Manager and another to provide optional 110-volts to the included receptacle.

The Outdoor Enclosure shall be mounted in close proximity to the irrigation controller.

The ET Manager Outdoor Enclosure shall be sold by Rain Bird Corporation.

Dimensions

11 5/8" H x 9 1/2" W x 4 1/4" D

Model

ETMi-OE: ETMi Outdoor Enclosure

Rain Bird® ET Manager™ External Antenna (ETMi-ANT)

Some locations have unavoidable features that impede receiver performance. An external antenna may improve signal reception. The ET Manager External Antenna kit includes an Antenex Phantom 3dB gain antenna complete with mounting bracket and 15 feet of antenna cable.

Electrical Specifications
Maximum Power: 150 watts 100 watts NGP

Technical Specifications
The ET Manager External Antenna Kit shall include a remote 3dB MEG external antenna complete with 15 antenna cable. The antenna cable connection shall be an N style male connector. Kit shall include self-fusing silicone tape to seal antenna cable connection. The cable end connected to the ET Manager shall be a BNC Male connector.

The ET Manager External Antenna shall be mounted on a flat surface in a location with better radio frequency qualities.

The ET Manager External Antenna shall be sold by Rain Bird Corporation.

Antenna Specifications
Gain: 3 dB-MEG.
Frequency Range: 890-960 MHz
VSWR: <1.8:170 MHz
Bandwidth: >70 MHz
Impedance: 50 ohms

Cable Specifications
RG8X cable – 15 feet
Center Conductor: Solid
Outer Jacket: Black
Dielectric Material: Solid PVC
Nominal OD: 0.242" Polyethylene
Nominal Impedance (ohms): 50.0
Nominal Capacitance (pf/ft): 33.0
Nominal Velocity of Propagation: 66%
Shield Cover: 95%
Attenuation (dB/100ft) 900 MHz: 10.70
Connectors: "N" Male X BNC Male

Dimensions
Diameter 1 7/16" Height 2 1/2"

Model
ETMi-ANT: ETMi External Antenna

110VAC Transformer (ETMi-TRAN)

The 110VAC Transformer powers the ET Manager in situations where it cannot draw electricity from a sprinkler controller's 24VAC power supply.

Electrical Specifications
Input: AC 120V 60Hz 32W
Output: AC 25.5V 1000mA
UL Listed 88Y3 E140896
20AWG wire 5 6 long

Technical Specifications
The 110VAC Transformer shall provide no more than 30-volts AC to the ET Manager from a standard 110-volt outlet.

The ET Manager must be mounted within 5 6 of an outlet.

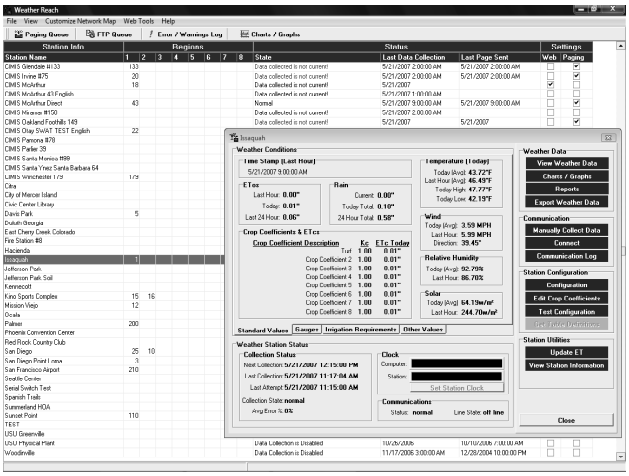
The 110VAC Transformer shall be sold by Rain Bird Corporation.

Dimensions
3 1/8" H x 2 1/4" W x 1 7/8" D

Model
ETMi-TRAN Rain Bird Part # S70002

Rain Bird® ET Manager™ Weather Reach Server Software (ETM-WRSS)

The Weather Reach Server is a powerful tool for obtaining, storing, and dispensing weather information in a variety of formats. The Weather Reach Server collects data from weather stations, stores the data in a structured format, and makes the data available in several ways. The Weather Reach Server is used to:



- Communicate with Rain Bird and Campbell Scientific weather stations.
- Create and manage a database of collected weather information.
- Generate reports and graphs.
- Automatically update a website with Evapotranspiration (ET) and weather data.
- Export weather and ET data to other programs.
- Use a paging provider to broadcast the Weather Reach Signal to an unlimited number of ET Managers.

Computer Requirements

Personal Computer

Windows NT, 2000, XP, or Vista

USB port for connection to Feedback Receiver

Always on Internet access

Connected to Weather Station(s) using short haul or dial-up modem

Uninterrupted Power Supply

Technical Specifications

The ET Manager Weather Reach Server shall be a system including Weather Reach Server Software, Page Command Software, Feedback Receiver, and USB interface. The Weather Reach Server shall communicate weather information to an unlimited number of ET Managers via commercial paging. The Weather Reach Server Software shall generate the Weather Reach Signal. The software shall access weather data from compatible weather stations. The weather information collected shall be stored in a database, automatically sent to the paging provider for broadcast to ET Managers, and may be posted on a designated web site. The software shall confirm receipt of data from a Feedback Receiver connected to the Weather Reach Server PC via a USB serial interface.

A Weather Reach Signal Provider (WRSP) shall establish an account with a paging company to broadcast the Weather Reach Signal. Irrisoft Inc. shall facilitate the contractual agreement between the WRSP and Metrocall, a division of USA Mobility, a nationwide paging service company. The Metrocall Paging Contract Information sheet shall be included in the Weather Reach Server kit.

The ET Manager Weather Reach Server shall be sold by Rain Bird Corporation.

TECH SPECS

WS-PRO2 Weather Station

Maxicom²® & SiteControl Central Control Systems

The WS-PRO2 Weather Station collects and stores weather data from field locations. This information is retrieved by the Central Controller daily, allowing Maxicom²® & SiteControl to adjust station run time and/or schedule day cycle frequency according to each day's ET (evapotranspiration) and rainfall.

WS-PRO2 Weather Stations are highly accurate, durable, and reliable. They are built using the highest quality sensors available and will provide years of reliable data even in the toughest environments. An on-board datalogger continually polls the sensors which measure air temperature, relative humidity, wind speed and direction, rainfall and solar radiation.

Weather Station Features

- Rugged yet lightweight metal construction
- Powerful internal micro-logger for data collection, logging, analysis, constant communication with sensors, and storage of 30 days of data
- Sensors monitor 6 ET/weather parameters: air temperature (high & low), solar radiation, relative humidity, wind speed, and rainfall – Wind direction is also measured
- Sensors located 3 meters above ground for added vandal resistance
- Simple-to-service sensors and internal components
- Self-diagnostic test mechanisms: internal moisture, battery voltage level, and test port for local sensor check
- Internal battery charged by 120 VAC/16 VDC transformer or optional solar panels

Maxicom²® Features

- WS-PRO2 Weather Station compatibility is standard for Maxicom²® v3.6 or later software
- Each site can have its own Weather Station or can share between sites
- Automatic communication standard
- Up to 24 automatic weather data retrievals can be configured per day

SiteControl Features

- WS-PRO2 Weather Station compatibility is standard for SiteControl v3.0 or later software
- SiteControl can interface with up to 6 weather stations
- Automatic communication between Central Controller and Weather Station requires SiteControl Automatic ET Software Module
- SiteControl Smart Weather Software Module enables automatic, user defined reactions to weather events (rain, freeze, high wind, etc.)

Models

- WS-PRO2-DC Direct Connect model – 2-pair wire connection with Central Controller via short-haul modem
- WS-PRO2-PH Phone Connect model – dial-up phone modem for phone communication with Central Controller
- WS-PRO2-PHS Phone Connect, Solar Power model – dial-up phone modem for phone communication with Central Controller, solar powered

Sensor Specifications

- **Air Temperature Sensor:**
  Range -13° to +122°F (-25° to +50°C)
  Accuracy +/- 2.7°F (+/- 1.5°C)
- **Relative Humidity Sensor:**
  Range 0 to 100%
  Accuracy +/- 6% @ 90% to 100% RH,
  +/- 3% @ 0% to 90% RH
- **Rain Gauge Sensor:**
  Resolution 0.01" (0.25 mm)
- **Solar Radiation Sensor:**
  Accuracy +/- 3%
- **Wind Speed Sensor:**
  Starting threshold 0.9 mph (0.4 m s-1)
- **Wind Direction Sensor:**
  Range 360° mechanical, 356° electrical, accuracy +/- 4°

Electrical Specifications

- **Input required:**
  9.6 to 16VDC from transformer (120 VAC/16 VDC transformer provided with powered stations) or solar panels
- **Power backup:** "Gel-cell" 12 VDC battery (provided with station)

How to Specify/Order

WS - PRO2 - PH

Series
WS-PRO2

Model
DC - Direct Connect
PH - Phone Connect
PHS - Phone Connect/ Solar Powered

Specifications

Model WS-PRO2-DC

The central control system shall include an on-site weather station where shown on the plans and specifications. The unit shall be complete with the necessary instruments for recording wind run, wind direction, relative humidity, rainfall, solar radiation, and high and low temperature. A micro-logger shall continuously poll and record the data every 5 seconds.

Short-haul modems shall be used for communication between the computer and weather station. Two twisted-pair wires (4 wires total) shall be furnished for both connection to the weather station and the central controller short-haul modem. This communication path shall not exceed 20,000 feet in total length.

The unit shall be complete with a 120 VAC/16 VDC transformer. A 120 VAC power connection shall be furnished at the transformer location.

The weather station shall be mounted on a poured concrete base and securely bolted to it. If the weather station is installed in an unsecured area, install inside a 6'-0" high (minimum) security fence with access gate. And all sides must be at least 8'-0" out from the weather station base. The security fence shall be such as not to interfere with the correct readings of the instruments.

Surge protection shall be provided for the 16 VDC power supply to the weather station. Surge protection shall be provided for the 2 twisted-pair communication lines installed for both the weather station short-haul modem and the central controller short-haul modem. The weather station shall be grounded to an earth ground. The earth ground network shall be 10 ohms or less when tested with a ground measuring device.

The weather station shall be as manufactured for Rain Bird Corporation Glendora, California

Model WS-PRO2-PH / -PHS

The central control system shall include a remote connected weather station where shown on the plans and specifications. The unit shall be complete with the necessary instruments for recording wind run, wind direction, relative humidity, rainfall, solar radiation, and high and low temperature. A micro-logger shall continuously poll and record the data every 5 seconds.

Telephone modems shall be used for communication between the computer and weather station. A dial-up telephone line shall be furnished for both connection to the weather station modem and the central controller modem.

The unit shall be complete with a 120 VAC/16 VDC transformer. A 120 VAC power connection shall be furnished at the transformer location. If the solar powered model is specified power is not required at the weather station.

The weather station shall be mounted on a poured concrete base and securely bolted to it. If the weather station is installed in an unsecured area, install inside a 6'-0" high (minimum) security fence with access gate. And all sides must be at least 8'-0" out from the weather station base. The security fence shall be such as not to interfere with the correct readings of the instruments.

Surge protection shall be provided for the 16 VDC power supply to the weather station. Surge protection shall be provided for the telephone communication lines installed for both the weather station modem and the central controller short-haul modem. The weather station shall be grounded to an earth ground. The earth ground network shall be 10 ohms or less when tested with a ground measuring device.

The weather station shall be as manufactured for Rain Bird Corporation Glendora, California

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Rain Bird Corporation
6991 E. Southpoint Road, Tucson, AZ, 85706, U.S.A.
Phone: (520) 741-6100 Fax: (520) 741-6522

Rain Bird Corporation
970 W. Sierra Madre Avenue, Azusa, CA, 91702, U.S.A.
Phone: (626) 812-3400 Fax: (626) 812-3411

Rain Bird International, Inc.
P.O. Box 37, Glendora, CA, 91740-0037, U.S.A.
Phone: (626) 963-9311 Fax: (626) 852-7343

Technical Service and Support
(800) RAINBIRD (U.S. and Canada only)

Specification Hotline
(800) 458-3005 (U.S. and Canada only)

www.rainbird.com

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CONSTRUCTION DOCUMENTS SPECIFICATIONS

An RTF text file of these specifications can be found on the ET Manager Resource CD.

ET Manager

The ET Manager (ETMi) shall be a control device for a sprinkler controller, and shall be adaptable to most sprinkler controllers. It shall be programmable to site-specific conditions to manage landscape watering based on hourly weather conditions.

The ET Manager (ETMi) shall be programmable to the required Signal Provider Code in order to receive messages from the Weather Reach™ Signal Provider (WRSP). The user shall be able to enter a weather region code number that corresponds to the desired weather station data source operated by the WRSP.

The ET Manager (ETMi) shall calculate ET values using the ASCE Standardized equation based on weather station input including wind speed, temperature, relative humidity, and solar energy. Effective rainfall shall be subtracted from ET to calculate a soil moisture balance.

The ET Manager (ETMi) shall interrupt the 24 VAC common wire suspending irrigation frequency based on user-selectable irrigation amounts.

The ET Manager (ETMi) shall be mounted in close proximity to the irrigation controller; in applications requiring outdoor mounting, the ET Manager shall be mounted in a weatherproof enclosure.

The ET Manager (ETMi) shall operate at 12 to 30 Volts AC or 12 to 35 Volts DC @ 0.22 Amp max and be capable of withstanding a maximum contact load of 4 Amp @ 30 Volts AC maximum.

The ET Manager (ETMi) shall have an integrated override button to permit maintenance and manual watering to occur.

The ET Manager (ETMi) shall have a factory supplied 9-volt alkaline battery to maintain clock time and program memory during a power outage.

The ET Manager (ETMi) shall have programmable settings and records shall be stored in non-volatile memory and be able to be recalled.

The Rain Bird ET Manager Series shall be sold by Rain Bird Corporation.

ET Manager Tipping Rain Gauge

The Tipping Rain Gauge shall provide a measurement of local rain fall to the Rain Bird ET Manager. It shall provide rain information via a dry contact pulse measuring 1mm of rain per pulse or tip with a maximum +/- 2 percent deviation. It shall be made of durable, weatherproof material resisting UV radiation, frost and extreme temperatures. It shall include a 30-foot cable.

The Tipping Rain Gauge must be mounted on a level surface in a location where natural rainfall may be caught, not blocked by obstructions, nor in a location where sprinkler water might be collected in addition to rain.

The Tipping Rain Gauge shall be sold by Rain Bird Corporation

ET Manager Outdoor Enclosure

The ET Manager Outdoor Enclosure (ETMi-OE) shall be a secure case with mounting plate for use with the Rain Bird ET Manager (ETMi). It shall provide protection for the ET manager against rugged environmental conditions. It shall have two conduit holes in the bottom of the case, one to accommodate necessary wiring between a sprinkler controller and the ET Manager and another to provide optional 110-volts to the included receptacle.

The Outdoor Enclosure shall be mounted in close proximity to the irrigation controller.

The ET Manager Outdoor Enclosure shall be sold by Rain Bird Corporation.

ET Manager External Antenna

The ET Manager External Antenna Kit shall include a remote 3dB MEG external antenna complete with 15 antenna cable. The antenna cable connection shall be an N style male connector. The kit shall include self-fusing silicone tape to seal antenna cable connection. The cable end connected to the ET Manager shall be a BNC Male connector.

The ET Manager External Antenna shall be mounted on a flat surface in a location with better radio frequency qualities.

The ET Manager External Antenna shall be sold by Rain Bird Corporation.

110VAC Transformer

The 110VAC Transformer shall provide no more than 30-volts AC to the ET Manager from a standard 110-volt outlet.

The ET Manager must be mounted within 5 6 of an outlet.

The 110VAC Transformer shall be sold by Rain Bird Corporation.

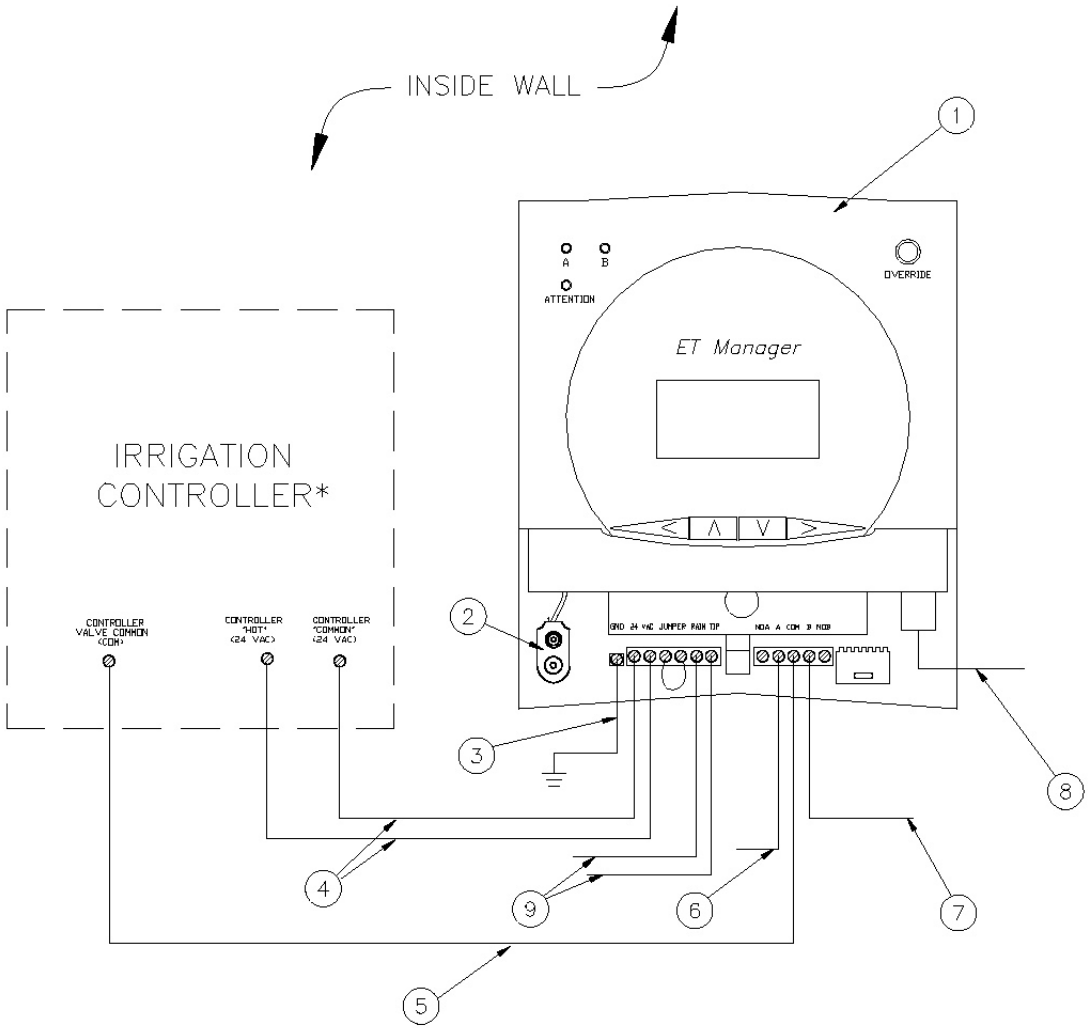
Weather Reach Server Software

The ET Manager Weather Reach Server shall be a system including Weather Reach Server Software, Page Command Software, Feedback Receiver, and USB interface. The Weather Reach Server shall communicate weather information to an unlimited number of ET Managers via commercial paging. The Weather Reach Server Software shall generate the Weather Reach Signal. The software shall access weather data from compatible weather stations. The weather information collected shall be stored in a database, automatically sent to the paging provider for broadcast to ET Managers, and may be posted on a designated web site. The software shall confirm receipt of data from a Feedback Receiver connected to the Weather Reach Server PC via a USB serial interface.

A Weather Reach Signal Provider (WRSP) shall establish an account with a paging company to broadcast the Weather Reach Signal. Irrisoft Inc. shall facilitate the contractual agreement between the WRSP and Metrocall, a division of USA Mobility, a nationwide paging service company. The Metrocall Paging Contract Information sheet shall be included in the Weather Reach Server kit.

The ET Manager Weather Reach Server shall be sold by Rain Bird Corporation.

DETAILS



1. ET MANAGER, RAIN BIRD ETMi, INDOOR WALL MOUNT (DIMENSIONS 5.6"(w) x 6.5"(h) x 2"(d). WEIGHT ~15oz)
2. 9-VOLT ALKALINE BATTERY (BATTERY INCLUDED)
3. #10 - #18 GAUGE COPPER GROUND WIRE TO EARTH GROUND
4. 24VAC POWER (HOT AND COMMON WIRES) FROM IRRIGATION CONTROLLER
5. COMMON WIRE TO CONTROLLER
6. VALVE GROUP "A" -- FIELD COMMON TO VALVES THAT ARE ASSIGNED TO VALVE GROUP "A."
7. VALVE GROUP "B" -- (SEPARATE) FIELD COMMON TO VALVES THAT ARE ASSIGNED TO VALVE GROUP "B."
8. ANTENNA, ETMi-ANT (OPTIONAL)
9. RAIN GAUGE, ETM-RG (OPTIONAL)

* RAIN BIRD CONTROLLER RECOMMENDED. OTHER COMPATIBLE CONTROLLER MAY BE USED. REQUIRES 12-30 VAC/60 Hz OR 12 TO 35 VDC @0.1 AMP MAX. SEE SPECIFIC CONTROLLER DOCUMENTATION FOR CONTROLLER WIRING DETAILS.

A

ET MANAGER

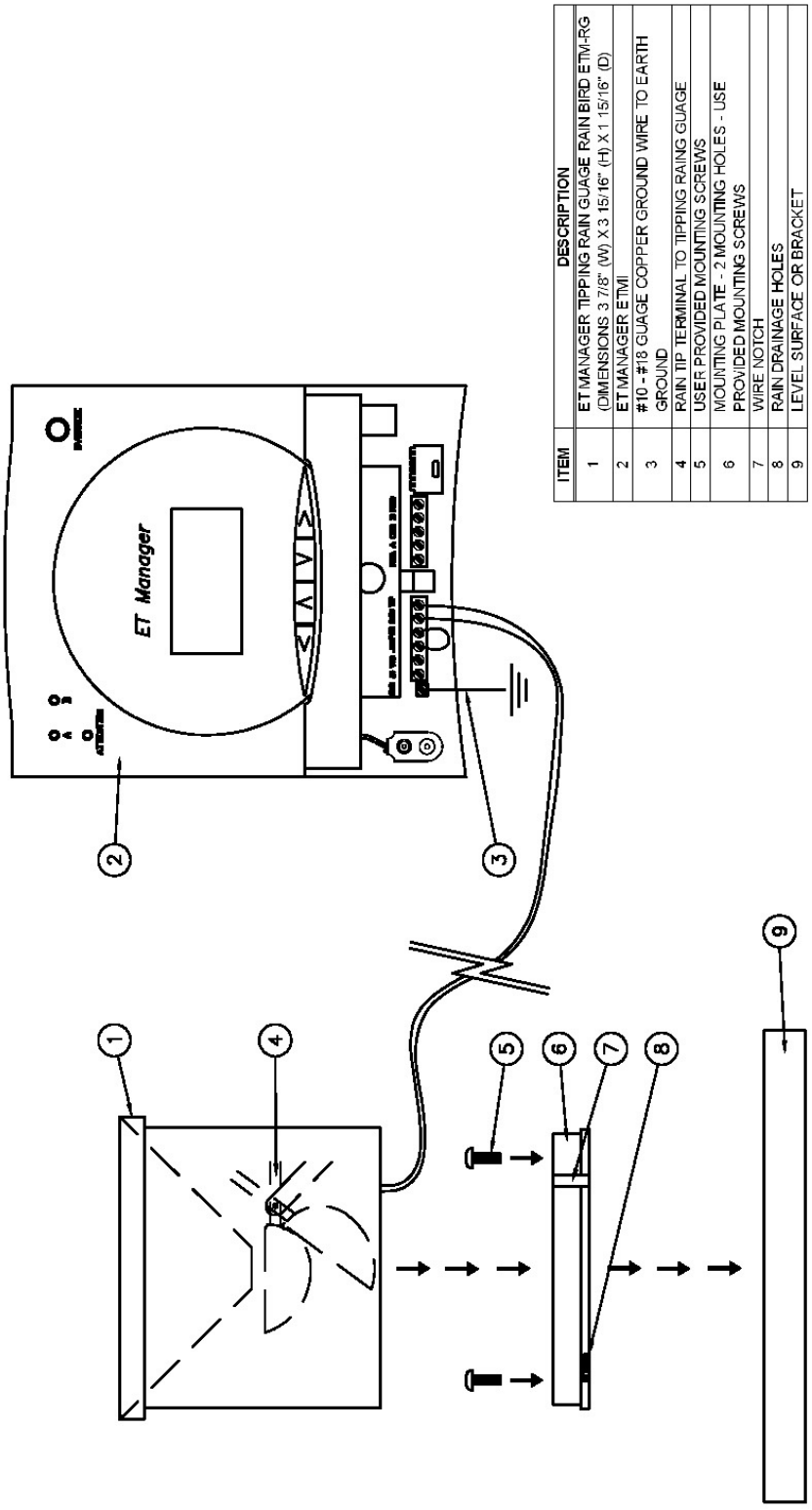
N.T.S.

ETMi (INDOOR)

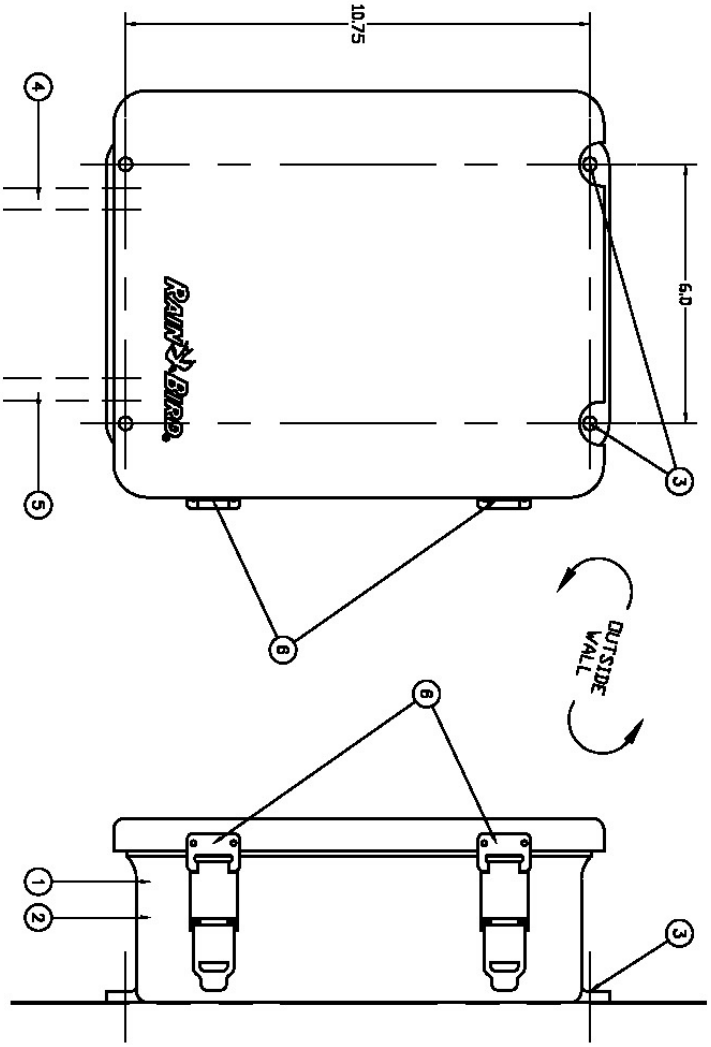
1-15-07

C-E CLASS.DWG

ACCESSORIES
ET Manager Tipping Rain Gauge


ET Manager
ITEM
DESCRIPTION
1 ET MANAGER TIPPING RAIN GUAGE RAIN BIRD ETM-RG (DIMENSIONS 3 7/8" (W) X 3 15/16" (H) X 1 15/16" (D)
2 ET MANAGER ETMI
3 #10 - #18 GUAGE COPPER GROUND WIRE TO EARTH GROUND
4 RAIN TIP TERMINAL TO TIPPING RAING GUAGE
5 USER PROVIDED MOUNTING SCREWS
6 MOUNTING PLATE - 2 MOUNTING HOLES - USE PROVIDED MOUNTING SCREWS
7 WIRE NOTCH
8 RAIN DRAINAGE HOLES
9 LEVEL SURFACE OR BRACKET
A
TIPPING RAIN GAUGE
N.T.S.
ETM-RG
ET Manager – Tipping Gauge Install.dwg

ET Manager Outdoor Enclosure



ITEM	DESCRIPTION
1	ET MANAGER OUTDOOR ENCLOSURE RAIN BIRD ETMi-OE (DIMENSIONS 11 5/8" (H) X 9 1/2" (W) X 4 1/4" (D))
2	MOUNT ET MANAGER, MODEL ETMi INSIDE ENCLOSURE (USE WIRING DIAGRAM SUITED TO SELECTED CONTROL METHOD)
3	FOUR MOUNTING HOLES
4	1/2" CONDUIT OPENING FOR WIRING TO IRRIGATION CONTROLLER
5	OPTIONAL - 1/2" CONDUIT OPENING FOR WIRING TO 110 VAC TO PROVIDE POWER TO INTERNAL OUTLET. USE ETMi-TRAN 110 VAC PLUG-IN TRANSFORMER TO PROVIDE POWER TO ET MANAGER. (USE WHEN 24 VAC POWER IS NOT AVAILABLE FROM THE SPRINKLER CONTROLLER)
6	LOCKABLE HASP

A

ET MANAGER OUTDOOR ENCLOSURE

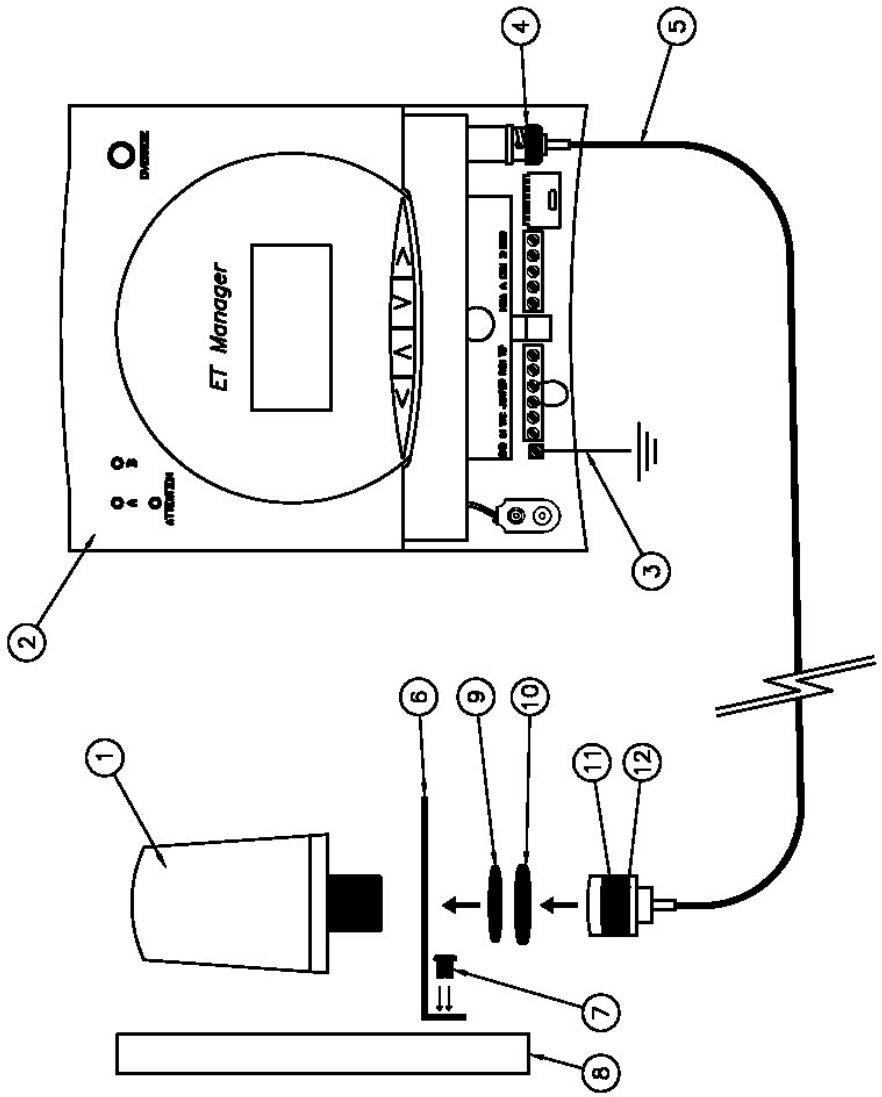
N.T.S.

ETMi-OE

ET Manager – Outdoor Enclosure.dwg

ET Manager External Antenna

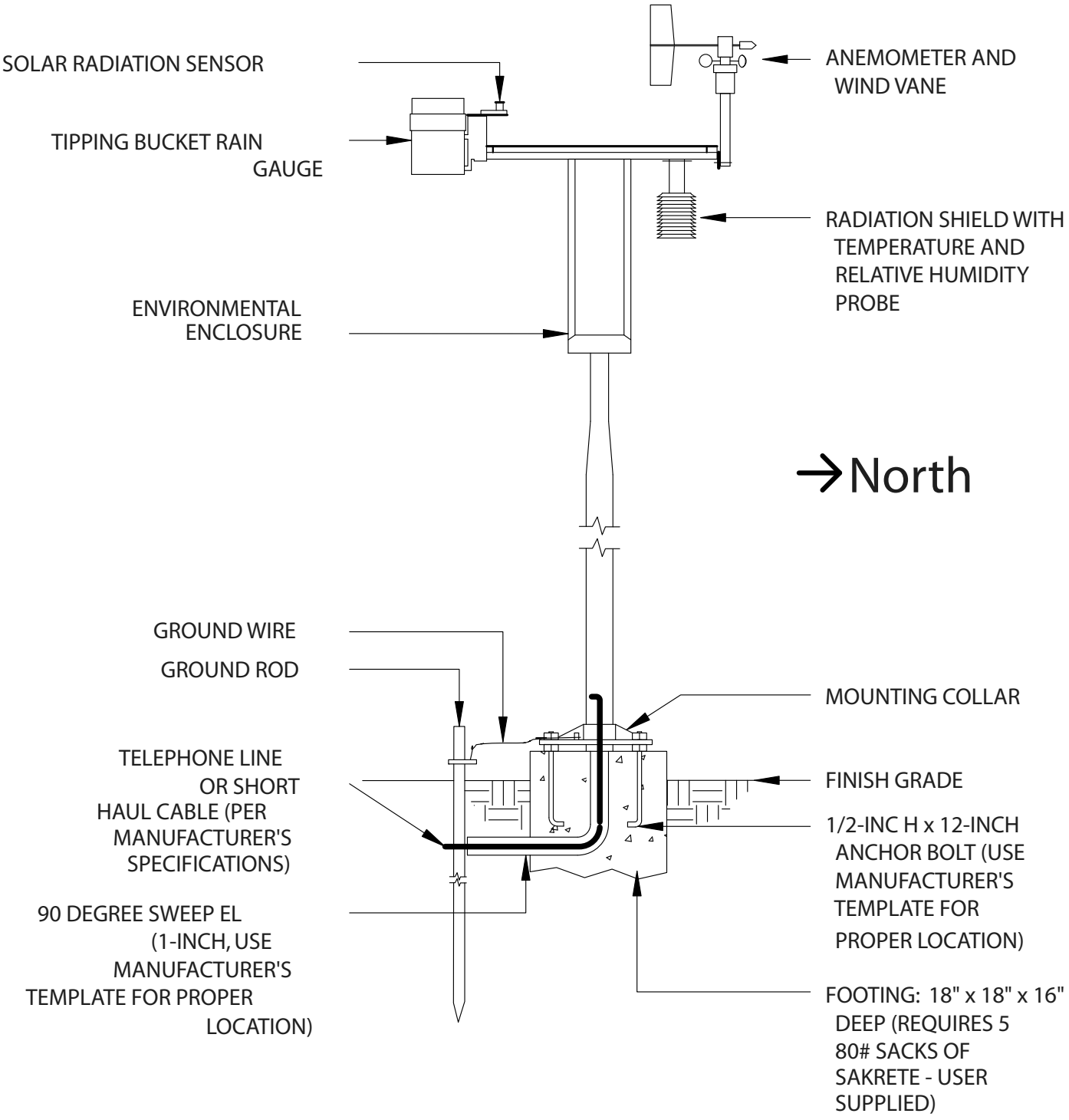
ITEM	DESCRIPTION
1	ET MANAGER EXTERNAL ANTENNA RAIN BIRD ETMi-ANT (DIMENSIONS HEIGHT 2 1/2" DIAMETER 1 7/16")
2	ET MANAGER ETMi
3	#10 - #18 GUAGE COPPER GROUND WIRE TO EARTH GROUND
4	BNC EXTERNAL ANTENNA CONNECTION
5	RG8X CABLE (15 FEET INCLUDED)
6	MOUNTING BRACKET (INCLUDED, DIMENSIONS 1 3/4" (L) X 1 5/8" (W) X 1 1/4" (H)) OR USER SELECTED SURFACE OR ENCLOSURE
7	MOUNTING SCREWS (INCLUDED)
8	USER SELECTED MOUNTING SURFACE
9	LOCK WASHER
10	HEX NUT
11	MALE 'N' CONNECTOR
12	SELF-FUSING SILICON SEALING TAPE USED TO SEAL ANTENNA CABLE CONNECTION (INCLUDED)



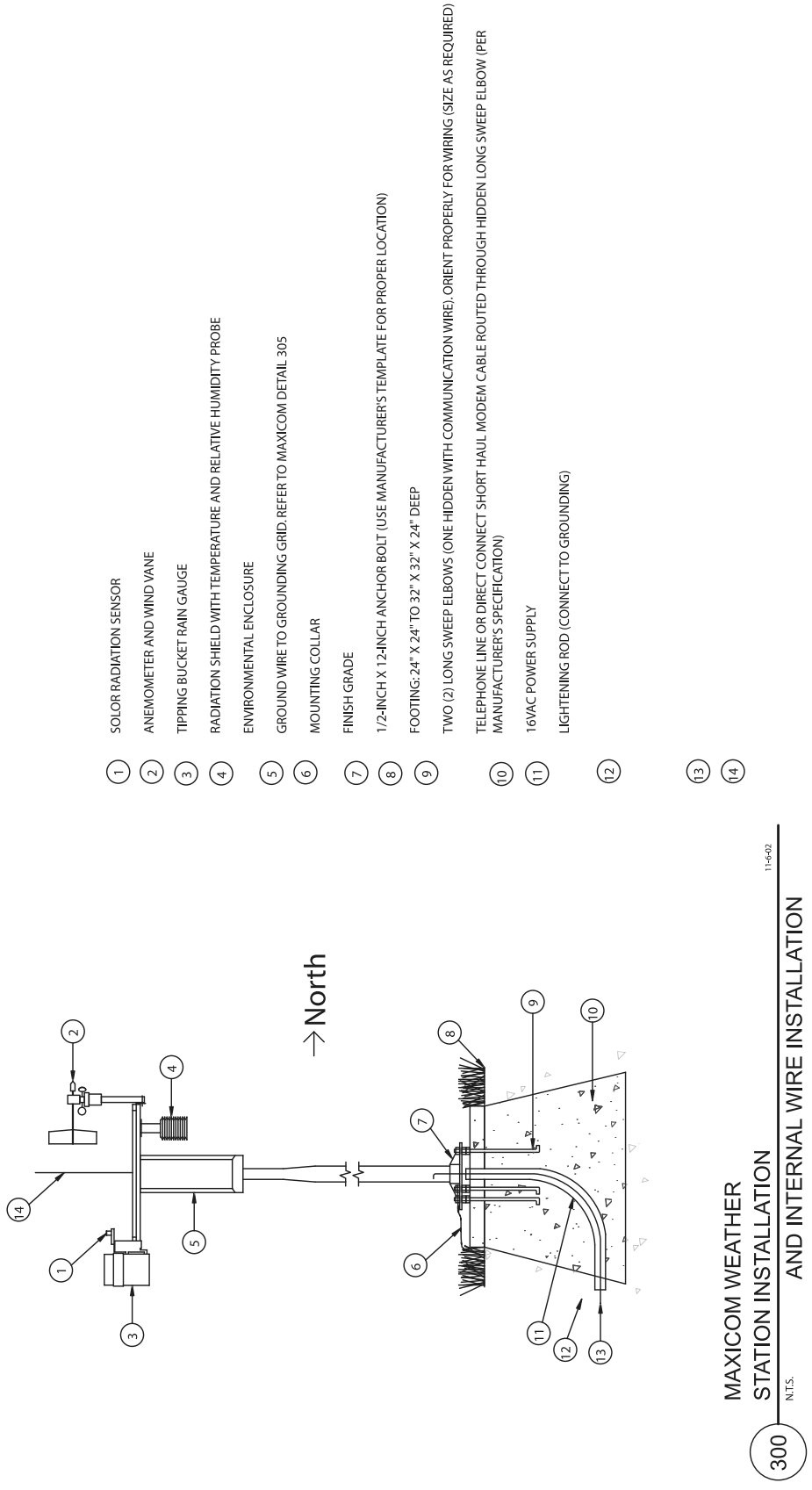
A ET MANAGER EXTERNAL ANTENNA
N.T.S. ETMi-ANT

ET Manager – External Antenna.dwg

WS-PRO WEATHER STATION


SOLAR RADIATION SENSOR
ANEMOMETER AND WIND VANE
TIPPING BUCKET RAIN GAUGE
RADIATION SHIELD WITH TEMPERATURE AND RELATIVE HUMIDITY PROBE
ENVIRONMENTAL ENCLOSURE
→North
GROUND WIRE
GROUND ROD
MOUNTING COLLAR
TELEPHONE LINE OR SHORT HAUL CABLE (PER MANUFACTURER'S SPECIFICATIONS)
FINISH GRADE
1/2-INC H x 12-INCH ANCHOR BOLT (USE MANUFACTURER'S TEMPLATE FOR PROPER LOCATION)
90 DEGREE SWEEP EL (1-INCH, USE MANUFACTURER'S TEMPLATE FOR PROPER LOCATION)
FOOTING: 18" x 18" x 16" DEEP (REQUIRES 5 80# SACKS OF SAKRETE - USER SUPPLIED)

Maxicom Weather Station Installation (300)

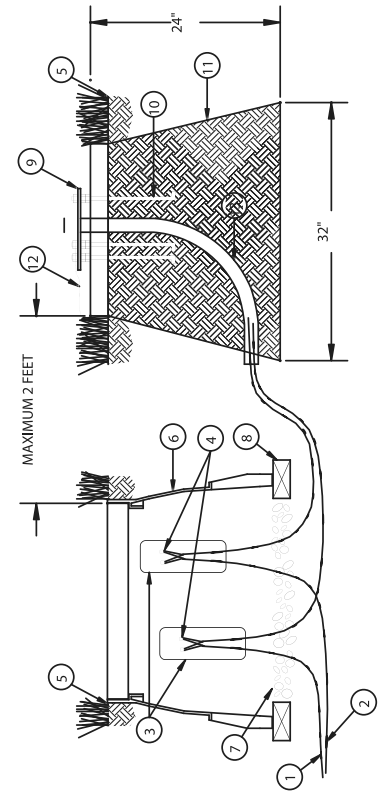

1 SOLOR RADIATION SENSOR
2 ANEMOMETER AND WIND VANE
3 TIPPING BUCKET RAIN GAUGE
4 RADIATION SHIELD WITH TEMPERATURE AND RELATIVE HUMIDITY PROBE
5 ENVIRONMENTAL ENCLOSURE
6 GROUND WIRE TO GROUNDING GRID. REFER TO MAXICOM DETAIL 305
7 MOUNTING COLLAR
8 FINISH GRADE
9 1/2-INCH X 12-INCH ANCHOR BOLT (USE MANUFACTURER'S TEMPLATE FOR PROPER LOCATION)
10 FOOTING: 24" X 24" TO 32" X 32" X 24" DEEP
11 TWO (2) LONG SWEEP ELBOWS (ONE HIDDEN WITH COMMUNICATION WIRE). ORIENT PROPERLY FOR WIRING (SIZE AS REQUIRED)
12 TELEPHONE LINE OR DIRECT CONNECT SHORT HAUL MODEM CABLE ROUTED THROUGH HIDDEN LONG SWEEP ELBOW (PER MANUFACTURER'S SPECIFICATION)
13 16VAC POWER SUPPLY
14 LIGHTENING ROD (CONNECT TO GROUNDING)
North
MAXICOM WEATHER STATION INSTALLATION AND INTERNAL WIRE INSTALLATION
300
N.T.S.
11-6-02

Maxicom Weather Station External Wiring – post (301)

1. 12-INCH X 12-INCH ENCLOSURE (NEMA 3)
2. 120/16 VAC TRANSFORMER
3. WIRE NUT CONNECTORS
4. FINISH GRADE
5. TWO (2) LONG SWEEP ELBOWS (ONE HIDDEN WITH COMMUNICATION WIRE). ORIENT PROPERLY FOR WIRING (SIZE AS REQUIRED)
6. TELEPHONE LINE OR DIRECT CONNECT CABLE TO HIDDEN LONG SWEEP ELBOW
7. 16 VAC TO WEATHER STATION THROUGH LONG SWEEP ELBOW
8. GROUND WIRE TO GROUND RODS. SEE MAXICOM DETAIL 305
9. CONDUITS
10. 120 VAC POWER SUPPLY
11. WEATHER STATION TEMPLATE
12. 4-INCH X 4-INCH POST (TREATED)
13. WEATHER STATION ANCHOR BOLTS
14. CONCRETE PAD. REFER TO MAXICOM DETAIL 300
15. CONCRETE

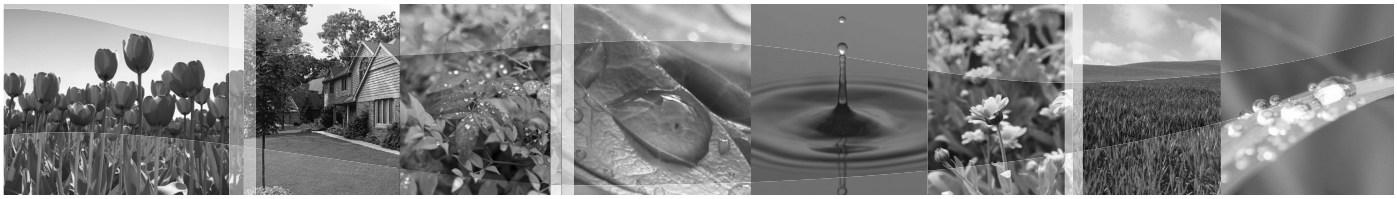
Maxicom Weather Station External Wiring - underground (302)

1. PE-CABLE FOR TELEPHONE/DIRECT CONNECT COMMUNICATION
2. 16 VAC FROM SUPPLIED TRANSFORMER
3. PREFORMED SUPER SERVISEAL WATERPROOF WIRE SPLICE KIT
4. WIRE NUT CONNECTOR
5. FINISH GRADE
6. VALVE BOX WITH COVER - 12-INCH SIZE
7. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
8. BRICK (1 OF 4)
9. WEATHER STATION TEMPLATE
10. WEATHER STATION ANCHOR BOLTS
11. CONCRETE PAD. REFER TO DETAIL 300
12. GROUND WIRE TO GROUND RODS. SEE MAXICOM DETAIL 305
13. TWO (2) LONG SWEEP ELBOWS (ONE HIDDEN WITH COMMUNICATION WIRE). ORIENT PROPERLY FOR WIRING (SIZE AS REQUIRED)



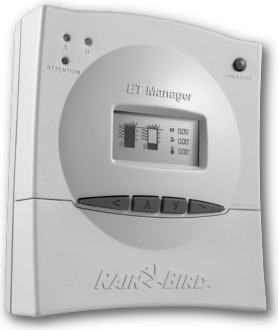
MAXICOM WEATHER STATION
EXTERNAL WIRE CONNECTION
INSTALLATION
N.T.S.
11-6-02
302

RESOURCES



Rain Bird® ET Manager™

The New Standard in Weather-Smart Irrigation.



ET Manager (ETMi)

Although over-watering has always been something homeowners, public water agencies, property managers and landscapers tried to avoid, increasing water scarcity has brought this problem into the spotlight. No matter how efficient an irrigation controller's watering schedule is, however, it must take into account constantly changing weather conditions – specifically evapotranspiration (ET) and rainfall. ET is the amount of water lost from the soil through evaporation plus the plant's water loss (known as transpiration), both of which are dramatically affected by weather conditions. Rain Bird ET Manager™ uses current weather information and ET to water your landscape only when it needs it.

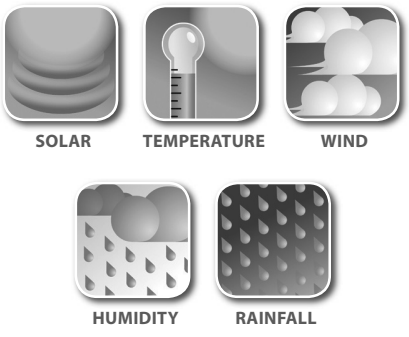
Since precise landscape water management is key to avoiding over-watering, the ET Manager can be an effective tool. This simple, powerful irrigation management solution works with virtually any controller, converting a conventional irrigation system into a weather-smart one that adjusts itself according to accurate real-time weather data. The ET Manager helps to maintain the optimum moisture balance in your soil. As the weather changes, your ET Manager receives updates automatically every hour and only allows your controller to water when needed. The result: significant water savings, deeper root systems, and a healthier landscape. Whether you are a water agency, contractor, specifier, or homeowner, the ET Manager is the smart choice.

Why Install the ET Manager?

Unsurpassed Accuracy

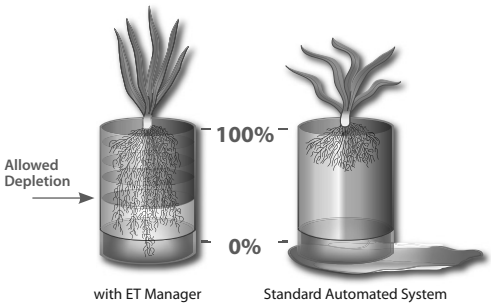
The ET Manager is the most accurate product of its kind, featuring hourly (not just daily) wireless updates from local precision weather stations. ET Manager technology is based on the Irrigation Association-endorsed, ASCE*-standardized ET equation, and includes data from all required climatic variables (solar radiation, temperature, wind, and humidity). An optional onsite rain gauge can further localize the weather data accuracy. With the ET Manager, your irrigation system will always be in tune with the weather.

** American Society of Civil Engineers*



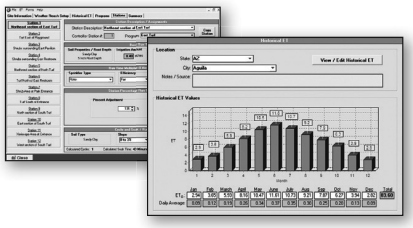
Healthier Landscapes

Increased watering schedule control means your irrigation system delivers water only when the landscape needs it. Best horticultural practices recommend deep, less-frequent watering. The ET Manager does just that. Through a process known as "Managed Allowed Depletion," it allows your soil's moisture balance to reach a user-set moisture level that increases oxygen and promotes deeper, healthier root systems.



Easy Setup and Installation

Installing the unit is simple: Mount it to the wall near your existing controller, connect the controller common wire(s) and enter the simple site-specific information. A one-page step-by-step installation poster and quick user guide allow for quick, convenient installation and setup. In just minutes, ET Manager is ready to receive hourly weather data from the nearest local precision weather stations.
ET Manager Scheduler software, included free, makes it easy to program your ET Manager and existing or new controller. Best of all, you get the benefit of comprehensive weather station data without having to install and maintain one onsite.



Free Scheduling Software

Cost-Effective Solution

ET Manager is flexible and works with virtually any existing irrigation controller. Nearly any irrigation configuration – from the smallest residential yard to the largest commercial application – can benefit from ET Manager. Dramatic water savings mean that ET Manager is the smart choice for nearly any non-central control application: state agencies, water districts, universities, schools, parks, commercial buildings, planned communities, homeowner associations, apartment buildings, and more.

Rain Bird Reliability

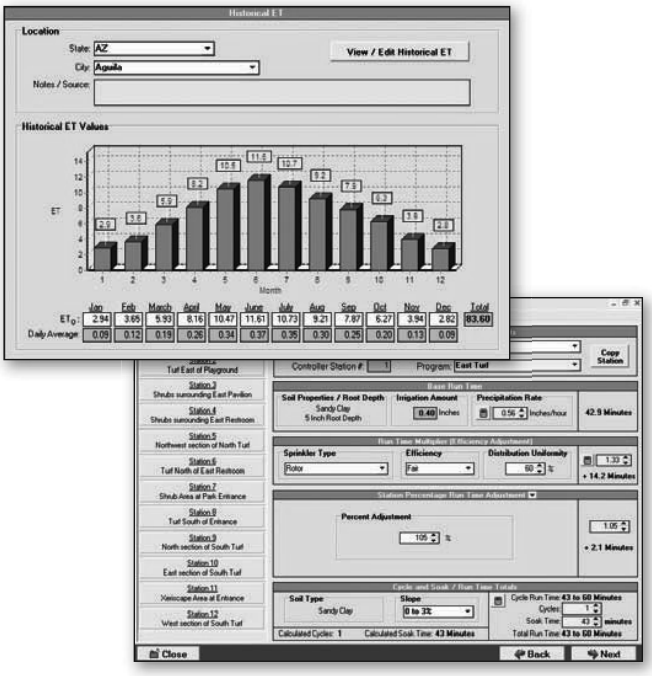
Rain Bird has been a pioneer in the irrigation industry since 1933. We're devoted to making your watering system smarter and more efficient. For more than 20 years, Rain Bird weather-based central control systems have used weather data and ET to automate irrigation control. Continuing the pioneering tradition of offering only the highest quality and most reliable solutions, the ET Manager now brings weather-based control to everyone.

Install Confidence.
Install Rain Bird.®

ET Manager™ Scheduler (free with ET Manager)

The Rain Bird® ET Manager™ Scheduler generates the most accurate, water-efficient irrigation schedules by determining ET Manager and irrigation controller settings. The ETM Scheduler compiles site-specific conditions to generate an easy to understand watering schedule based on real-time evapotranspiration (ET) data.

The ETM Scheduler allows you to select your controller from a database of popular controllers and automatically builds your irrigation schedule around your controller's capabilities. To ensure accuracy, the software considers plant and soil type, root depth, run off, available watering days, and time to ensure your landscape gets the right amount of water. ETM Scheduler walks you through the schedule to easily enter key information. While the software does the work automatically, it still allows you to adjust any value to fully customize your irrigation controller's schedule, which you can conveniently print in report form.



Free powerful software that allows you to accurately create irrigation schedules for your ET Manager and virtually any controller.

Plant, water and soil relationships are a foundation for effective irrigation scheduling. ETM Scheduler support documentation includes in-depth resources to help you better understand these essential principles and apply them to your individual needs.

The ET Manager Scheduler creates custom-tailored schedules to take advantage of your sprinkler system's performance. The software uses water application (precipitation) rates and overall irrigation system efficiency to calculate the most accurate schedules in three ways:

- Sprinkler Performance Tables – Select your sprinkler and nozzle from a database containing the most popular models from major manufacturers, enter the head spacing, and the ETM Scheduler calculates the precipitation rate automatically.
- Catch Can – You can quickly enter results of a catch can test to calculate precipitation rates and distribution uniformity. The software will take you step-by-step through the catch can process.
- Drip Systems – You can use a simple calculator to conveniently calculate percipitation rates.

> ***The ET Manager Scheduler creates custom-tailored schedules to take advantage of your sprinkler system's performance.***

ETM Scheduler provides a printout of your custom schedule that includes watering days, program start times, station run times, and ET Manager settings. You can use this printout to manually program your ET Manager and irrigation controller. You can also post a copy at the controller for convenient reference and customize the report format to include your company information.

Schedules can be saved on your computer and used in similar applications. The free software comes with the purchase of any Rain Bird ET Manager and can also be downloaded from our web site at **www.rainbird.com**.

ET Manager Programming Software (ETM-PS)

The Rain Bird ET Manager Programming Software uses your personal computer to simplify ET Manager programming. This application helps you transfer ET Manager Scheduler settings directly from your computer to an ET Manager via a USB cable. The ET Manager Programming Software allows you to perform several key functions:

- Conveniently program all settings
- Quickly program multiple ET Managers
- Review ET Manager programming history
- Integrate with the ET Manager Scheduler
- Print a programmed settings report
- Manage a Weather Reach Signal Provider database
- Access ET Manager diagnostic tools
- Save commonly used program settings for future use

ETM-PS

ET Manager Outdoor Enclosure (ETMi-OE)

Protect your Rain Bird ET Manager with proven security. The ET Manager Outdoor Enclosure is a lockable, weatherproof, UV-protected plastic cabinet. The integrated mounting plate is pre-drilled for the ET Manager.

ETMi-OE

Tipping Rain Gauge (ETM-RG)

The Tipping Rain Gauge is an ideal complement to the ET Manager. Self-emptying and frost-proof, this electronic gauge accurately measures rain to 1mm per tip, reducing over-watering and avoiding landscape damage.

From the top of the rain collector, water runs through a funnel into a self-emptying spoon. Once 1mm of water collects, the spoon tips and automatically sends a pulse message to the ET Manager.

The Tipping Rain Gauge is durable, weatherproof, and resists UV and extreme temperatures. Measurements per tip are accurate, with a maximum +/-2 percent deviation. Each gauge includes a 30-foot cable.

ETM-RG

ET Manager External Antenna (ETMi-ANT)

Add an external antenna to your ET Manager for peak performance. Some locations have unavoidable features (towers, buildings, hills, etc.) that impede receiver performance and make an external antenna a necessity. The kit includes an Antenex™ Phantom™ 3dB gain antenna complete with mounting bracket and 15 feet of antenna cable.

ETMi-ANT

110VAC Transformer (ETMi-TRAN)

The 110VAC Transformer powers your ET Manager in situations where it cannot draw electricity from a sprinkler controller's 24VAC power supply.

ETMi-TRAN

Become a Weather Reach™ Signal Provider

for the Rain Bird® ET Manager™

ET Manager allows you to provide sustained water conservation without sacrificing the beauty of local landscapes.

The demand for sustained water conservation is growing. Studies show the typical landscape receives twice the amount of water it needs to remain healthy. Experts say water should be put back into the soil at an optimum rate – based on a landscape's evapotranspiration (ET). Rain Bird ET Manager makes a formerly manual process automatic, managing watering frequency based on real-time, hourly weather data, received wirelessly. It works with virtually any irrigation controller and even measures the rainfall a landscape receives. Using accurate, timely weather data, ET Manager will significantly cut landscape water use.

ET Manager is smart water conservation and peace of mind. Becoming a Weather Reach Signal Provider allows you to offer this valuable data and its water conserving benefits to anyone in your community with an automatic irrigation system, ensuring future savings.

The Smart Choice

The irrigation industry and the public demand improved water management. Property owners want convenience, peace of mind, and financial savings. Most of all, they want all of these without sacrificing a healthy, beautiful landscape. The Rain Bird ET Manager is the smart choice – it provides cost savings and convenience, simply and powerfully.

Once you become a Public Signal Provider, you provide the data that enables ET Managers in your community. ET Managers connect to virtually any irrigation controllers via a common wire, and use the hourly data you provide to determine when to replenish moisture in the landscape. ET Manager interrupts irrigation until water is needed, balancing the landscape's needs with the ever changing weather.

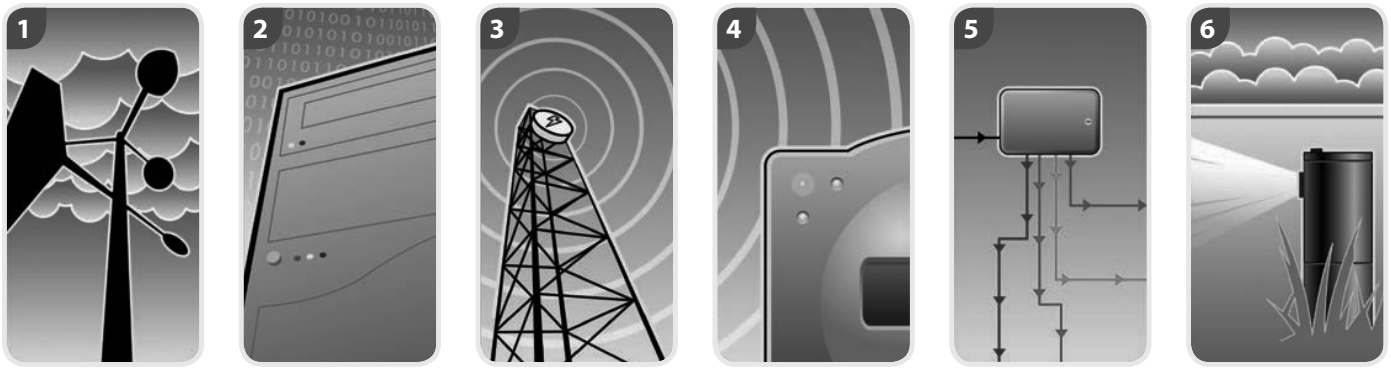
It's easy to become a Signal Provider - all you need is a compatible weather station and the server software.

Becoming a Public Signal Provider is easier than you might think. All you need is a compatible weather station or access to one, and the Weather Reach Server Software. We'll guide you through the simple process, including establishing paging service with a nationwide wireless paging company.

Communities and property owners/managers across the country are installing ET Managers to better manage precious water resources and improve the health and beauty of local landscapes.

Benefits of Becoming a Public Signal Provider

- Sustained water conservation goals – dramatically reduce irrigation over watering
- Confidence – backed by Rain Bird
- Accurate – uses the industry-standard ASCE ET equation endorsed by the Irrigation Association (IA)
- Public visibility – broadcast weather data as a community service
- Reduce maintenance – no need to adjust controllers
- Healthier landscapes – uses "Managed Allowed Depletion"
- Broadest compatibility – can be used with virtually any irrigation controller



Weather Station(s) | Weather Reach Server | Paging System | ET Manager | Irrigation Controller | Irrigation System

A Smart Solution for Water Conservation

Becoming a Weather Reach Signal Provider for ET Manager is a smart solution for your organization to provide sustained water conservation in your community. The ET Manager/Weather Reach Signal is a proven process that will provide convenience and peace of mind to anyone in your community looking for automatic weather-based irrigation control.

Automated Weather Station(s)

Rain Bird also offers a complete weather station with professional high-quality sensors packaged with the Weather Reach Server Software. One weather station can provide information to an unlimited number of ET Managers within a Signal Provider's paging area. If you already own/operate a Rain Bird or Campbell Scientific weather station as part of your Maxicom or other weather-based system, the only thing you need is the Weather Reach Server Software.

Weather Reach™ Server (ETM-WRSS)

The Weather Reach Server is a software application used to automatically retrieve weather data from a single weather station or a weather station network. The server is designed to run on a standard PC and can be operated by an individual, company or agency. It includes an ET Manager feedback receiver for verification to give you peace of mind that your signal is being broadcast. The weather data generated by the Weather Reach Server can be used and shared in several ways:

- Broadcast wirelessly via a paging network to ET Managers
- Uploaded to websites to show current weather information and evapotranspiration data
- Output for custom weather reports and graphs
- Exported to other software programs

Commercial Paging

Each hour the weather data is automatically uploaded through the Internet to a commercial wireless paging system and broadcast to ET Managers set up to receive your signal within your area. To verify transmissions, a feedback receiver confirms system operation.

ET Manager (ETMi)

ET Managers use this real-time weather data to determine exactly how much water a landscape needs. The ET Manager connects to virtually any irrigation controller via the common wire and allows watering only when it's needed. It takes the guesswork out of watering and there is no longer any need to worry when the weather changes.

If you are interested in becoming a Weather Reach Signal Provider for Rain Bird ET Managers in your area, please contact us at **1-877-351-6588** or visit our web site at **www.rainbird.com**.

COMMERCIAL
SIGNAL PROVIDER

Become a Weather Reach™ Signal Provider

for the Rain Bird® ET Manager™

ET Manager connects to virtually any irrigation controller and allows your customers to save significant amounts of water without sacrificing the beauty of their landscape.

The demand for water savings is growing. Studies show the typical landscape receives twice the amount of water it needs to remain healthy. Experts say water should be put back into the soil at an optimum rate – based on a landscape's evapo-transpiration (ET). Rain Bird ET Manager makes a formerly manual process automatic, managing watering frequency based on real-time, hourly weather data, received wirelessly. It works with virtually any irrigation controller and even measures rainfall. Using accurate, timely weather data, ET Manager will significantly cut landscape water use, and reduce onsite maintenance.

ET Manager is smart water conservation and peace of mind. Becoming a Weather Reach Signal Provider provides you the unique opportunity to offer this valuable weather data and its benefits to anyone with an automatic irrigation system and the ET Manager. You'll set yourself apart as an expert who uses and understands the latest water-saving technology. Rain Bird will help build your credibility as you help your clients realize their landscape and water conservation goals.

The Smart Choice

The industry and the public demand improved water management. Property owners want convenience, peace of mind, and financial savings. Most of all, they want all of these without sacrificing a healthy, beautiful landscape. ET Manager is the smart choice – it provides cost savings and convenience, simply and powerfully.

Once you become a Commercial Signal Provider, you provide the data that enables ET Managers in your surrounding area.

It's easy to become a Signal Provider - all you need is a compatible weather station and the server software.

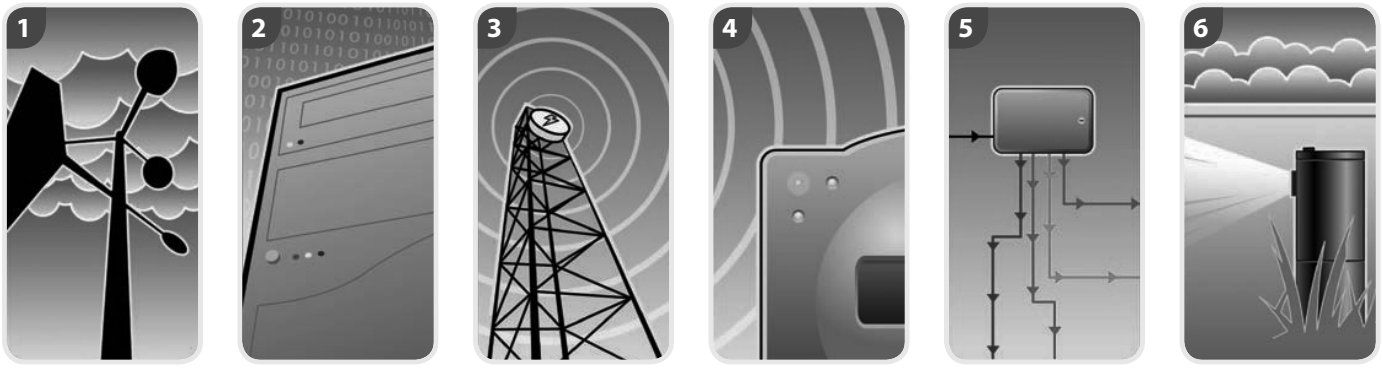
ET Managers connect to virtually any irrigation controllers via the common wire, and use hourly data to determine when to replenish moisture in the landscape. ET Manager interrupts irrigation until water is needed, balancing the landscape's needs with the ever-changing weather.

Becoming a Commercial Signal Provider is easier than you might think. All you need is a compatible weather station (or access to one) and the Weather Reach Server Software. We'll guide you through the simple process, including establishing paging service with a nationwide wireless paging company.

Communities and property owners/managers across the country are installing ET Managers to better manage precious water resources and improve the health and beauty of local landscapes. Take advantage of this trend and start building your business today.

Benefits of Becoming a Commercial Signal Provider

- Reinforces your reputation as an irrigation expert
- Provides a business opportunity to sell ET Manager units and provide added-value service (for a fee) within your community
- Enhances water management services
- Increases customer satisfaction and convenience
- Reduces irrigation system maintenance
- Saves money and water by dramatically reducing over-watering



Weather Station(s) | Weather Reach Server | Paging System | ET Manager | Irrigation Controller | Irrigation System

A Smart Solution for Growth

Becoming a Weather Reach Signal Provider is a smart solution for business growth and a means to provide sustained water conservation. The ET Manager/ Weather Reach Signal is a proven process that will provide convenience and peace of mind to your customers and improve your service level.

Automated Weather Station(s)

Rain Bird also offers a complete weather station with professional high-quality sensors packaged with the Weather Reach Server Software. One weather station can provide information to an unlimited number of ET Managers within a Signal Provider's paging area. If you already own/operate a Rain Bird or Campbell Scientific weather station as part of your Maxicom or other weather-based system, the only thing you need is the Weather Reach Server Software.

Weather Reach™ Server (ETM-WRSS)

The Weather Reach Server software automatically retrieves weather data from a single weather station or a weather station network. The server runs on a standard PC and can be operated by an individual, company or agency. It includes an ET Manager signal verification unit to give you peace of mind that your signal is being broadcast. The weather data generated by the Weather Reach Server can be used and shared in several ways:

- Broadcast wirelessly via a paging network to ET Managers
- Uploaded to websites to show current weather information and ET data
- Output for custom weather reports and graphs
- Exported to other software programs

Commercial Paging

Each hour the weather data is automatically uploaded through the Internet to a commercial wireless paging system and broadcast to ET Managers set up to receive your signal within your area. To verify successful transmissions, a feedback receiver confirms system operation.

ET Manager (ETMi)

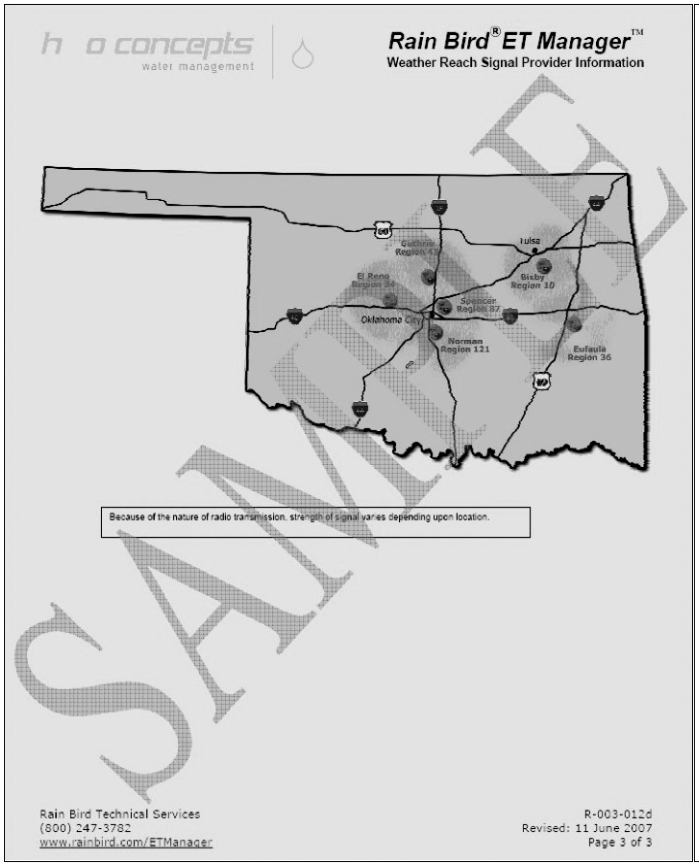
ET Managers use this real-time weather data to determine exactly how much water a landscape needs. The ET Manager connects to virtually any irrigation controller via the common wire and allows watering only when it's needed. It takes the guesswork out of watering and there is no longer any need to worry when the weather changes.

If you are interested in becoming a Weather Reach Signal Provider for ET Managers in your area, please contact us at **1-877-351-6588** or visit our web site at **www.rainbird.com**.

WEATHER REACH SIGNAL PROVIDER INFORMATION SHEET

A Weather Reach Signal Provider Information Sheet provides the installer with the key information needed to program an ET Manager to receive the Weather Reach Signal from the local Weather Reach Signal Provider. The document includes; the Signal Provider Code, a list of available weather stations, their location, elevation and Historical ET. Also included are contact information and any applicable billing or subscription requirements. Weather Reach Signal Provider Information Sheets can be obtained at www.rainbird.com or www.irrisoft.net (see the links below for specific URL addresses).

Sample Weather Reach Signal Provider Information Sheet:



h o concepts
water management

Rain Bird® ET Manager™
Weather Reach Signal Provider Information

Because of the nature of radio transmission, strength of signal varies depending upon location.

Rain Bird Technical Services
(800) 247-3782
www.rainbird.com/ETManager

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Revised: 11 June 2007
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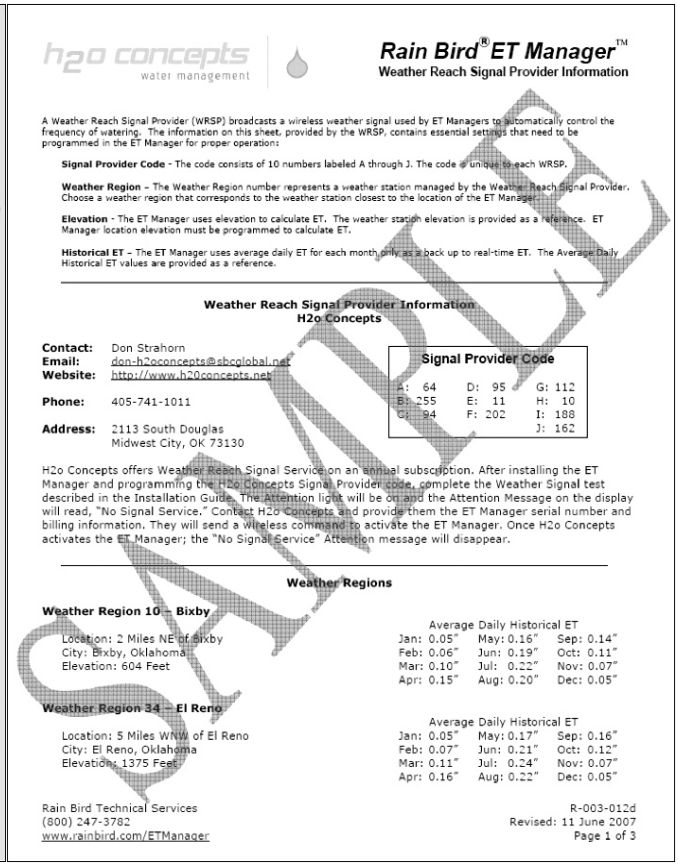

h2o concepts
water management

Rain Bird® ET Manager™
Weather Reach Signal Provider Information

A Weather Reach Signal Provider (WRSP) broadcasts a wireless weather signal used by ET Managers to automatically control the frequency of watering. The information on this sheet, provided by the WRSP, contains essential settings that need to be programmed in the ET Manager for proper operation:

Signal Provider Code - The code consists of 10 numbers labeled A through J. The code is unique to each WRSP.

Weather Region – The Weather Region number represents a weather station managed by the Weather Reach Signal Provider. Choose a weather region that corresponds to the weather station closest to the location of the ET Manager.

Elevation - The ET Manager uses elevation to calculate ET. The weather station elevation is provided as a reference. ET Manager location elevation must be programmed to calculate ET.

Historical ET – The ET Manager uses average daily ET for each month only as a back up to real-time ET. The Average Daily Historical ET values are provided as a reference.

Weather Reach Signal Provider Information
H2o Concepts

Contact: Don Strahorn
Email: don-h2oconcepts@sbcglobal.net
Website: http://www.h2oconcepts.net
Phone: 405-741-1011
Address: 2113 South Douglas
Midwest City, OK 73130

Signal Provider Code

A: 64	D: 95	G: 112
B: 255	E: 11	H: 10
C: 94	F: 202	I: 188
		J: 162

H2o Concepts offers Weather Reach Signal Service on an annual subscription. After installing the ET Manager and programming the H2o Concepts Signal Provider code, complete the Weather Signal test described in the Installation Guide. The Attention light will be on and the Attention Message on the display will read, "No Signal Service." Contact H2o Concepts and provide them the ET Manager serial number and billing information. They will send a wireless command to activate the ET Manager. Once H2o Concepts activates the ET Manager; the "No Signal Service" Attention message will disappear.

Weather Regions

Weather Region 10 – Bixby
Location: 2 Miles NE of Bixby
City: Bixby, Oklahoma
Elevation: 604 Feet

Average Daily Historical ET

Jan: 0.05"	May: 0.16"	Sep: 0.14"
Feb: 0.06"	Jun: 0.19"	Oct: 0.11"
Mar: 0.10"	Jul: 0.22"	Nov: 0.07"
Apr: 0.15"	Aug: 0.20"	Dec: 0.05"

Weather Region 34 – El Reno
Location: 5 Miles WNW of El Reno
City: El Reno, Oklahoma
Elevation: 1375 Feet

Average Daily Historical ET

Jan: 0.05"	May: 0.17"	Sep: 0.16"
Feb: 0.07"	Jun: 0.21"	Oct: 0.12"
Mar: 0.11"	Jul: 0.24"	Nov: 0.07"
Apr: 0.16"	Aug: 0.22"	Dec: 0.05"

Rain Bird Technical Services
(800) 247-3782
www.rainbird.com/ETManager

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Revised: 11 June 2007
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SAMPLE

http://www.rainbird.com/landscape/products/controllers/etmanager_WRSP.htm

http://www.irrisoft.net/buy/service.htm

SOFTWARE

ET Manager Resource CD

Included with each ET Manager is an ET Manager Resource CD. This CD contains the ET Manager Scheduler and three product tutorials which are short video/audio presentations that explain the ET Manager system. Also included are PDF files of the ET Manager Installation and Operation Manual, ET Manager Scheduler operation guide, installation poster, and overview card. Product literature including; the ET Manager Overview, Tech Specs, Software/Accessories, Weather Reach Public Signal Provider and Weather Reach Commercial Signal Provider can also be found. There are several easy to use worksheets such as an Installation Checklist, Catch Can Test and other worksheets. Application notes for using the ET manager with Maxicom and IM can be found on the CD. Also available on the CD is the ETMi Simulator which is a program that looks and functions like an ET Manager which allows a virtual tour of the ET Manager screens and settings.

ET Manager Scheduler

Included with each ET Manager, the ET Manager Scheduler was designed to make programming the ET Manager a simple step-by-step process. Throughout the software are handy calculators to help determine the ideal settings for each landscape based on characteristics such as soil type, rooting depth, precipitation rate, slope, and micro-climate factors. The ET Manager Scheduler creates a printable report showing exactly how to program each setting as well as the optimum run times for the sprinkler controller. The ET Manager Scheduler software is free and included on the ET Manager Resource CD that comes with each ET Manager, it can also be downloaded from www.rainbird.com (see link below).

http://www.rainbird.com/landscape/products/controllers/etmanager.htm

ET Manager Programming Software

The ET Manager Programming Software is a powerful tool for the contractor or distributor who needs to program several ET Managers. This software was designed to go hand in hand with the ET Manager Scheduler software and comes with a USB PC interface connector. The ET Manager can be plugged into the PC and all the settings transferred directly to the ET Manager. Schedules can be saved for future use of commonly used settings or for later retrieval. Also, the Programming Software can upload information from the ET Manager's many logs; this information can be used for evaluation of performance as well as diagnostics tools. The ET Manager Programming Software can be purchased from a Rain Bird® distributor.

ET Manager™ Application Notes

Rain Bird Maxicom² Central Control System

The Rain Bird ET Manager (Model ETMi) can provide the Rain Bird Maxicom² Central Control System with ET, rainfall amounts, or a sensor interrupt based on rain, low temperature, and high wind conditions. The ET Manager receives hourly weather information broadcast by a Weather Reach Signal Provider who accesses a network of weather stations.

Maxicom² site hardware pulse sensor inputs recognize a momentary dry contract switch closure for each 0.01" of ET and/or Rain. These inputs are configured as a Weather Source in the Maxicom² software. Maxicom² site hardware switched sensor inputs recognize an open or closed switch condition, which can be programmed in the Maxicom² software to interrupt irrigation.

Choose one of the two ET Manager advanced output methods to provide sensor input to the Maxicom² System:

- **ET and Rain Pulse:** ET and rainfall data is input to the Maxicom² site hardware using a "pulse" method. A dry contact switch closure represents 0.01" of ET or Rain. The relays operate in a normally open condition.
- **ET Pulse and Weather Interrupt:** ET data is input to the Maxicom² site hardware using a "pulse" method. A dry contact switch closure represents 0.01" of ET. The relay operates in a normally open condition. A Weather Interrupt can be input to the Maxicom² site hardware using a switched contact method (open or closed). The Weather Interrupt is utilized to prevent watering if any one of the three Weather Interrupt conditions occurs: rain, freezing conditions, or high wind. The relay operates in a normally closed condition.

Maxicom² Site Hardware Requirements

- **ET and Rain Pulse:**
  - **Maxicom² Pulse Decoder input:** The ET and Rain Pulse require individual Maxicom² Pulse Decoders connected to individual channels on the CCU two-wire path.
  - **Maxicom² ESP-SITE Satellites and ESP-SAT Link-Radio Satellites input:** ESP-SITE Satellites and ESP-SAT Link-Radio Satellites can be used for either an ET or Rain input but should not be used for both ET and Rain Pulse input with the ET Manager at this time.

- **ET Pulse and Weather Interrupt:**
  - **Maxicom² Pulse Decoder input:** The ET Pulse requires a Maxicom² Pulse Decoder connected to the CCU two-wire path.
  - **Maxicom² ESP-SITE Satellites and ESP-SAT Link-Radio Satellites input:** The ET Pulse requires Sensor Input A or B on a Maxicom² ESP-SITE Satellite or ESP-SAT Link-Radio Satellite.
  - **Maxicom² Sensor Decoder input:** The Weather Interrupt requires either a Maxicom² Sensor Decoder connected to the CCU two-wire path.
  - **Maxicom² ESP-SITE Satellites and ESP-SAT Link-Radio Satellites input:** The Weather Interrupt requires Sensor input A or B on a Maxicom² ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite.

ET Manager Wiring

- Remove the jumper on the ET Manager terminal labeled "Jumper."

ET and Rain Pulse

- **ET Pulse:** Use a pair of wires connected to the ET Manager ET pulse output terminals, labeled NOA and A. Select the Maxicom^2 hardware input:
    - **Maxicom^2 Pulse Decoder input:** Connect to the blue and blue/white wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.
- **Rain Pulse:** Use a pair of wires connected to the ET Manager ET pulse output terminals, labeled NOB and B. Select the Maxicom^2 hardware input:
    - **Maxicom^2 Pulse Decoder input:** Connect to the blue and blue/white wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.

Note: The Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite currently does **not** support two weather inputs. Select either an ET or Rain input to one satellite.

ET Pulse with Weather Interrupt

- **ET Pulse:** Use a pair of wires connected to the ET Manager ET pulse output terminals, labeled NOA and A. Select the hardware input:
    - **Maxicom^2 Pulse Decoder input:** Connect to the blue and blue/white wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.

- **Weather Interrupt:** Use a pair of wires connected to the ET Manager Weather Interrupt terminals, labeled COM and B. Select the hardware input:
    - **Maxicom^2 Sensor Decoder input:** Connect to the two yellow wires.
    - **Maxicom^2 ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite input:** Connect to either sensor input A or B.

ET Manager System Settings

- **ET and Rain Pulse:**
    - Output Method = ET and Rain Pulse
    - Rain Source = Broadcast
    - Pulse per Minute = 10
    - ET Pulse Duration = 0.2 seconds
    - Rain Pulse Duration = 0.2 seconds

- **ET Pulse with Weather Interrupt:**
  - Output Method = ET Pulse with Interrupt
  - Rain Source = As needed
  - Pulse per Minute = 10
  - ET Pulse Duration = 0.2 seconds
  - Weather Interrupt = Wind, Temperature and Rain as needed

Maxicom² System Software Setup

ET and Rain Pulse

CCU Properties

- **CCU Two-Wire / Pulse Decoder:**
  - **ET Pulse input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Site ET Collector (SETC)
    Device Name = ET Manager
    In/Pulse = 0.01 (default)
  - **Rain Pulse input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Site Rain Collector (SRC)
    Device Name = Rain Can
    In/Pulse = 0.01 (default)

- **ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite:**
  - **ET Pulse input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type = ET Gauge
    Device Name = ET Manager
    In/Pulse = 0.01 (default)
  - **Rain Pulse input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type Site Rain Collector (SRC)
    Device Name = ET Manager
    In/Pulse = 0.01 (default)
  - **Note:** Both ET Pulse and Rain Pulse inputs should **not** be used on the same CCU Channel.

ET Pulse and Weather Interrupt

CCU Properties

- **CCU Two-Wire / Pulse Decoder:**
  - **ET Pulse input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Site ET Collector (SETC)
    Device Name = ET Manager
    In/Pulse = 0.01 (default)

- **ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite:**
  - **ET Pulse input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type = ET Gauge
    Device Name = ET Manager
    In/Pulse = 0.01 (default)

- **CCU Two-Wire / Sensor Decoder:**
  - **Weather Interrupt input:** Select Channel Properties on an unused channel.
    Device Category = Sensor/Decoder
    Device Type = Wind Limit Sensor
    Device Name = ET Manager

- **ESP-SITE-Satellite or ESP-SAT Link-Radio Satellite:**
  - **Weather Interrupt input:** Select Channel Properties on a Satellite channel.
    Device Category = Satellite with Sensor Input(s)
    Select Sensor Input A or B Properties
    Device Type = Wind Limit Sensor
    Device Name = ET Manager

Maxicom²® Weather Source

- **ET:** Configure a new Weather Source and select the CCU Based - ET Gauge as the type. Identify the Site and CCU Channel location of the ET Pulse sensor input.

- **Rain:** Configure a new Weather Source and select the CCU Based - Site Rain Can as the type. Identify the Site and CCU Channel location of the Rain Pulse sensor input.

Maxicom²® Schedules

- **ET Sensitized Schedules:** The ET Manager can be used as a Weather Source (ET and/or Rainfall) for any Site(s). ET Sensitized Schedules on these Sites can utilize the ET Manager ET and/or Rainfall for automatic runtime adjustments.

- **Rain Watch Schedules:** The ET Manager can be used as a rainfall source for Site Rain Watch operations. Please see the Maxicom² User Manual or Schedule Templates for information about creating Rain Watch Schedules.

- **Weather Interrupt Schedules:** The ET Manager Weather Interrupt input can be used by a Sensor Schedule to Interrupt or Cancel irrigation schedules when pre-defined rain, wind or temperature thresholds occur. Please see the Maxicom² User Manual or Schedule Templates for information about creating Sensor Interrupt or Cancel Schedules.

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